



L H Moon
& Son
Bookbinders



NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, 3141; VIC.

17 MAY 1978



Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1910

To Cole's Bay, Freycinet Peninsula

(EAST COAST, TASMANIA)

REPORT ON CAMP-OUT

By E. A. Elliott, Hon. Secretary

DREDGING OPERATIONS

By C. T. Harrisson

Reprinted from "The Tasmanian Mail."

PRINTED AT "THE MERCURY" OFFICE, MACQUARIE STREET, HOBART.

10/2497



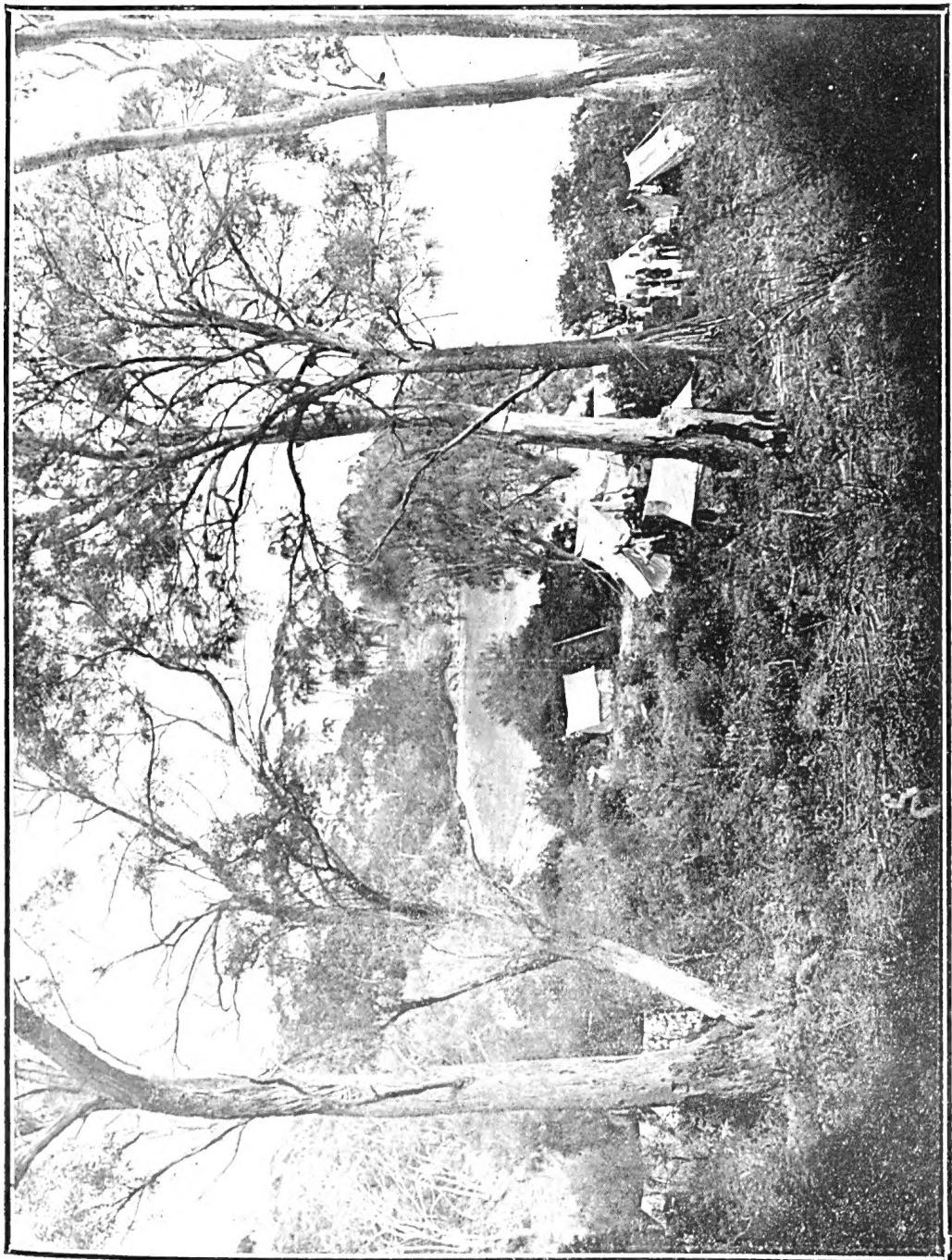


LIST OF CAMP MEMBERS

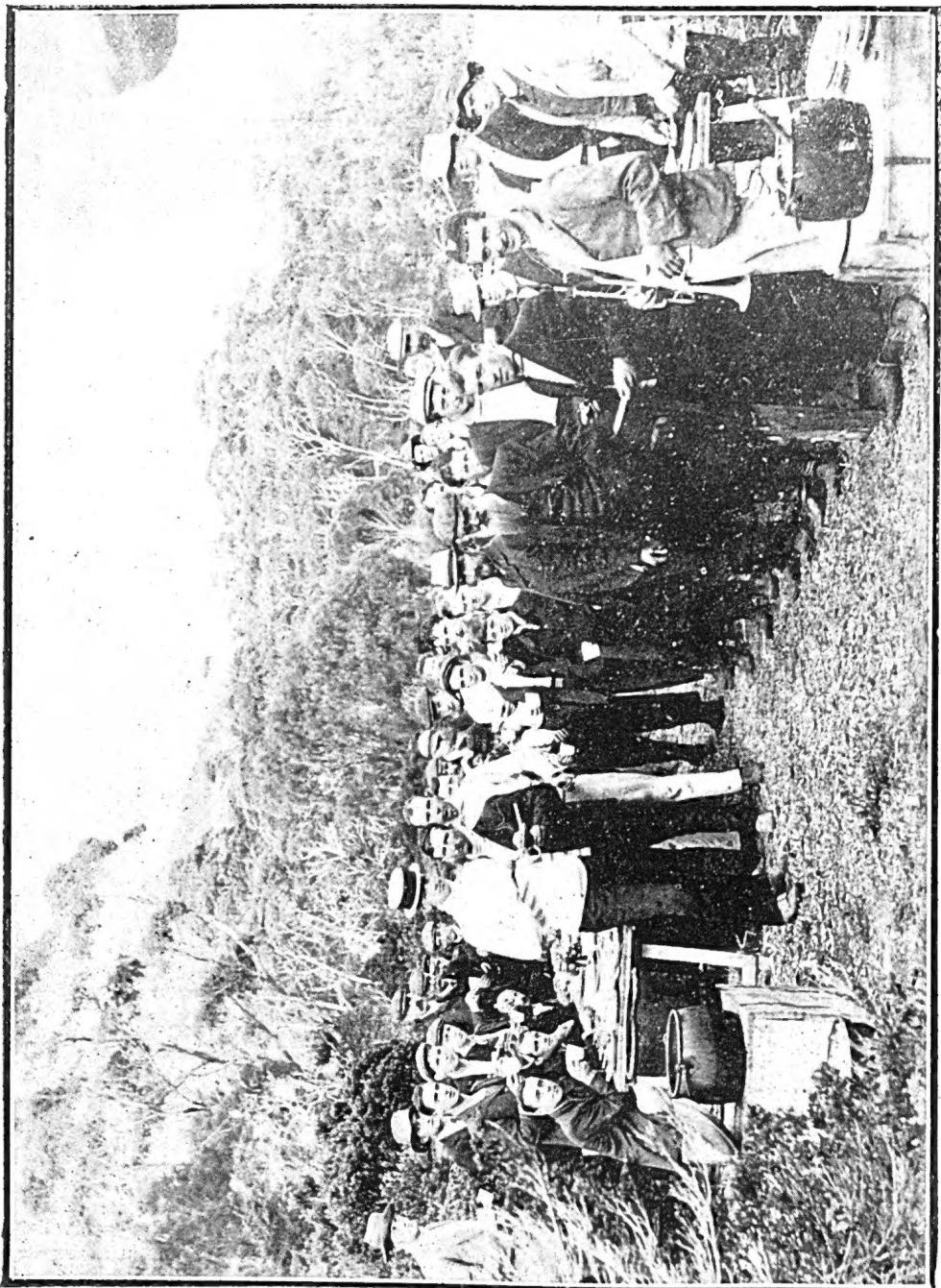
Mr. J. Andrewartha
Mrs. J. Andrewartha
Miss O. Barnard
Miss Baumgartner
Mr. H. Baynton
Mr. W. Boswood
Mr. G. Bishop
Mr. L. Brent
Miss M. Brumby
Mr. J. Cato
Mr. F. Crane
Mr. P. Crane
Mr. W. Crane
Mr. J. Cook
Mr. J. V. Cook
Mr. R. Creighton
Mr. W. Crookall
Mr. E. Cuthbertson
Mr. C. H. Elliott
Mr. E. A. Elliott
Miss H. M. Elliott
Mr. T. T. Flynn
Miss M. C. Fraser
Mr. B. Gibson
Mr. S. Gibson
Mr. D. Guilbert
Mr. Robt. Hall
Mr. C. H. Harrisson
Mr. E. D. Harrisson
Mr. E. P. Harrisson
Mr. K. N. Harrisson
Mr. R. C. Harvey
Mr. V. Higgins
Miss D. Hooley
Miss M. Hooley
Mr. J. T. Hurford
Mr. A. J. Honey
Mr. M. P. Honey
Mr. J. Johnston
Mr. A. H. Kenyon
Mr. W. S. Lake
Mr. J. Lennox
Mr. E. Lines
Mr. Alee, Lord
Mr. A. W. Lord
Mr. C. E. Lord
Mr. S. Lord
Miss R. Lutz
Mrs. A. E. Mackay
Mr. R. F. McAlister
Mrs. McInvoy
Miss C. Marsh
Mr. W. E. Masters
Mr. A. Mather
Mr. W. L. May
Miss J. F. Miller
Miss B. Murphy
Mr. C. A. Pitman
Miss A. Reid
Mrs. James Reid
Mrs. J. K. Reid
Miss M. Reid
Miss E. Richardson
Mr. A. Robb
Mr. R. Rodway
Mr. S. Rodway
Mr. E. Ross
Miss E. Ross
Mrs. H. Ross
Miss W. S. Ross
Miss Rountree
Miss E. Spong
Mrs. G. Sprott
Miss I. Sprott
Miss E. Stokell
Mr. R. Stops
Mr. A. W. Swindells
Mr. W. E. Taylor
Mrs. W. E. Taylor
Mr. R. Tinning
Miss E. Todd
Mr. A. M. Tregear
Mr. A. V. Tregear
Mr. A. E. Tyndall
Miss C. Walker
Mr. J. Ridley Walker
Mr. B. Watchorn
Mr. Wm. Whitesides
Mr. W. Whittington
Mr. A. White
Mr. J. White
Mr. E. V. N. Williams
Mr. G. Willian
Assistants.
C. Emery
J. W. Cole
J. Wilbourn
W. Woodward







THE CAMP SITE AT MEREDITH'S FISHERY.



ASSEMBLING FOR LUNCH.

Tasmanian Field Naturalists' Club

EASTER CAMP - OUT, 1910

By E. A. ELLIOTT, Hon. Secretary.

This club held its sixth annual camp-out at the Schoutens during the recent holidays. All going were aboard the Kookoona by midnight, and the vessel left the wharf at Hobart a few minutes past 12 o'clock on the morning of Good Friday, having on board 97 campers. The number is a record one for any private camp in Tasmania, and it is believed for any other part of the Commonwealth. It comprised club members, and a good many non-members, some of whom came from Northern Tasmania, and two from Victoria. Everyone expected, and as a matter of fact did enjoy a good time, partly because the camp was to be held on the Schoutens, partly because the weather was warm and fine, and, further, because the trip was organised by a club with a good name for Easter camps.

The exact site of the camp was at Meredith's Fishery, on Freycinet Peninsula, the part of the East Coast usually known as the Schoutens, a name given by Tasman. Oyster Bay lies between Freycinet Peninsula and the mainland, and Cole's Bay is a small bay at its head, Meredith's Fishery being the name of one of the beaches in Cole's Bay. The nearest township to the camp site is Swansea, about 12 miles on the other side of Oyster Bay.

Cole's Bay will shortly be coming into prominence in connection with the East Coast Industries Company, which recently obtained an enabling Act for the purpose of constructing a railway, manufacturing cement, working coal deposits at Bicheno, and other purposes. The terminus of the company's line and their wharves will be at Cole's Bay, several miles above the camp. The bay forms a magnificent harbour, and, as well as a utilitarian, it possesses a poetic aspect.

The granite hills, with their romantic outline and rich colouring, were a pleasant change to those who are accustomed to the basalt, sandstones, and mudstones around Hobart. Amongst the vegetation was seen the graceful form of the Oyster Bay pine, and the grass tree or Black Boy (*Xanthorrhoea Australis*) was very common. There are innumerable beaches besides, some small, whilst others are several miles in length; some com-

posed of pure quartz sand, shining and as white as snow, and others pink with powdered grains of granite. All were delightful to the eye, and were the scenes of many enjoyable swims. The peninsula from Cole's Bay to Schouten Passage is about 12 miles long, and about four miles across at its widest, while it has two necks about one mile in width, one between Cole's and Sleepy Bays, and the other between Hazard and Wineglass Bays. Although it is generally mountainous, there is a large flat on the isthmus between Hazard and Wineglass Bays, where there is a large lagoon of fresh water.

The beach chosen for the camp was an old camping ground of the East Coast residents, and the club itself held a camp there in 1906, when 40 took part. It lies at the foot of bare granite hills, and is sheltered from any boisterous weather, though a westerly wind may make the water a little rough.

When the party arrived about 2 p.m. on Friday afternoon the wind happened to be blowing rather strongly from the west, so that the landing was carried out under more or less exciting conditions. At the southern end of the beach there was a sheltered nook, where the boats were easily beached, though the goods had to be carried to the other end, where the cook's quarters were to be situated. Here was a large fireplace, and spaces cleared amongst the bushes, where tables were put up, and preparations made for the first camp meal.

The 'ladies' quarters had been chosen a hundred yards or so below the southern end of the landing beach, and on a slope which leads down to a second beach, where the majority used to swim each morning and evening. There were eleven tents in the ladies' quarters, and about 23 in the men's, so that the place had quite the appearance of a little town. All the first afternoon and evening were spent in putting the camp in order, when all worked cheerfully and well, and for several hours there was more industry shown than perhaps the place had seen since the early days, when whales were brought there and tried down for oil;

the remains of one of the "try-pots" still being visible on the beach.

Before the evening of the first night was far advanced most of the party sought the quiet of their tents, and the following morning made an early appearance, casting anxious looks in the direction of the cook's quarters. However, keen appetites had been provided for, and after breakfast everyone was more in a mood to express their delight at the beautiful scenes around them.

Whilst the steamer made an early start for ocean dredging with the more scientific members, other parties were preparing for fishing trips in the various boats brought up to the camp, or else for land excursions, most of the latter going over the hills into Wineglass or Thouin Bay. This is a spot which has ever held the palm for beautiful scenery in Tasmania, but, as it was the site of last year's camp, any description now would be superfluous; suffice it to say that artists and photographers were busy all the time, and the only regret was that the time passed too quickly.

The next day saw very many on board the Koonookarra again, when they were conveyed to Hazard Bay, ready for the ascent of Mount Freycinet. At least two parties made the ascent, others preferring to remain upon the beach, or else to go across the narrow neck to Wineglass Bay. Others went on to the fishing grounds at Schouten Passage, whilst the steamer was again used for dredging. Two parties reached the summit of Mount Freycinet, and when they saw the glorious panorama they were indeed glad of having gone.

On Easter Monday many stayed about the camp, whilst others went to Schouten Island in the Koonookarra; some to fish, others to sketch, but most to stay about the beaches there. Sports were organized, and made the time pass pleasantly and quickly. On arrival back at camp it was learnt that an aquatic carnival had been held there.

In the evenings large camp socials were held around a large fire on the beach, and the reclining figures of those there, and others in boats upon the water, made a most effective scene. Some members of the Derwent Infantry Band had brought their instruments, and added largely to the enjoyment of this part of the camp life, whilst many took part in the songs and recitations during the evenings. On Sunday evening hymns and sacred songs were sung.

During the trip the fishing was fair, but not equal to that of previous trips. At one drag of the seine five or six dozen flounders were caught, and from the boats occasional perch and trumpeter and a

few crayfish were taken; whilst flathead and rock-eel were taken in numbers.

But all good things must come to an end, and the necessity of passing through the East Bay Neck Canal in daylight and with a high tide necessitated an early start on Tuesday morning. Consequently all were on board at 8 a.m. Town was reached in good time, after an enjoyable voyage.

As a social function the camp was most successful, but another aspect must be taken with regard to a camp of naturalists, and it is therefore gratifying to know that the scientific results were more than had been anticipated. The locality of the camp site is undoubtedly sterile, and during the two previous camps the botany had been well worked up; nothing new was noted amongst the bird-life, and the same red granite must ever remain for the study of the geologist; but little, if anything, had previously been known of the marine invertebrate life in that locality, and dredging had therefore been made the chief scientific work of the trip. The results in this respect were excellent, some 60 species of shells new to Tasmania were obtained, and about 25 of these are new to science; other splendid specimens of very rare species were taken, as well as crustacea and other invertebrate life. Barren as the Peninsula is yet it forms an ideal national park, and the sooner it is placed under the control of trustees the better it will be. A nominal protection to game has been given to this part, but a kangaroo snare found by one of the camp members shows of what little use this is for any practical purpose. We have no true national park in Tasmania; let us, therefore, secure the Schoutens.

DREDGING OPERATIONS.

(By C. T. Harrisson.)

On the morning of March 26 the s.s. Koonookarra left the Easter encampment of the Field Naturalists Club, in Cole's Bay, Freycinet Peninsula, with a small, but interested, party on board, bent on seeing what could be picked up from as much of the floor of the Tasman Sea as time and the gear on board (provided for the purpose by Mr. W. L. May, of Sandford) would enable them to sweep.

When we steamed through the Schouten Passage all was in readiness for the day's work. The dredge line, 290 fathoms (1,290 feet) of pliant steel wire rope, not as thick as an ordinary lead pencil, yet with a breaking strain of 1,900lb., was wound upon the steam winch. From there the line "led" through blocks to the end of the long derrick, which, on ordinary



GETTING READY FOR DINNER.



SCENE ON THE BEACH.



A QUIET CORNER.



GROUP OF CAMP MEMBERS AT CO



BAY, FREYCINET PENINSULA.



THE BEACH, COLE'S BAY.

occasions, was used for hoisting cargo from the forehold; but on this occasion was to be used for the dredging. This not only allowed the dredge line to be towed clear of the steamer, but also enabled us to have the heavy-loaded dredge hoisted up above the bulwarks, and lowered on to the fore deck without any undue exertion on our part. The deep sea dredge was shackled on with a swivel to prevent the line from twisting up. This dredge differed greatly from the ordinary idea of dredges. It is a conical affair, a tapering round iron bucket, about 3ft. long, and about 2ft. across the mouth (or broad end), tapering down to a point at the bottom, and partly closed in front with a broad rim, secured in place with three bolts and nuts. This reduced the opening by a half, preventing the sand and debris from washing out again. To the lower end of this, like the tail to a kite, was fastened a small dredge of the usual pattern at the end of 40ft. or 50ft. of rope, and finally a 7lb. weight was fastened to the wire rope in front of the bucket dredge to make it "bite."

The deep-sea sounding line was wound up ready, the hollow at the bottom of the great leaden sinker filled with soap to bring up a "sample" of the sea floor. Near by were the sieves, and the round galvanised iron tub, partly filled with water, ready for sifting the sand brought up. Nor must mention be omitted of the array of boxes and tins and specimen jars!

"More than two miles out; let's try her!" The engines were stopped, reversed to check the vessel's "way," the little dredge thrown over, and the line paid out. Then the clatter of the steam winch, and over went the bucket dredge too, and, ballasted by the small dredge hanging from its lower end, floated away buoyantly astern. A vigorous tug on the line swamped it, and away the two dredges went on their mission below, the vessel, in Captain R. Holyman's able hands, "backing" or going ahead, as occasion required. Meanwhile volunteers (generally the skipper) "hove the lead." But in that deep water, despite the heavy sinker, it would sometimes trail away astern, useless as an indication of the depth. Then it would be hauled up, and a more successful "cast" made, on this occasion giving us 40 fathoms, with a "coraline" bottom. Then we waited, watching the thin taut line stretching from the derrick overhead to the sea astern, and the Kooneekarra rolled lazily along, broadside on to the sea, drifting quite fast enough for the work without assistance from the screw.

It was a beautifully fine day, with a light sea breeze from the south, and enough roll to convince us that we were really "on the open sea," and to make

some of us uncomfortable too. The line of granite coast north and south of us, broken and rugged, was both grand and beautiful, with the clear sky overhead, and that beautiful blue sea at the foot of the red-brown granite cliffs.

But it's time to have the dredges up—and the steam-winches clattered noisily, winding in the long length of line; while we watched (in a cloud of steam) for the dredge. It appears at last, and is hoisted above the level of the bulwarks. Some one catches at the bottom rope, sending a gallon or two of water, splashing down on us from the tilted bucket. (And I may remark after that little experience, we were more careful how we caught it.) The bucket dredge was guided in, lowered, and stood against the bulwarks. It was two-thirds full of sand; but before we attended to that, the little dredge (hanging from the bucket dredge) had to be got in. Willing hands, hauling on the rope, soon brought it in sight, with its trail of sand behind, for the stuff in this dredge gets practically sifted in its long passage from the depths below, the majority of the sand getting washed out through the meshes of the net, and as we lift it over the bulwarks a crustacean will be seen, or the long arms of some curious creature of the star-fish family, struggling from the debris of fragmentary coral and broken shells. The dredge is immediately emptied on to the deck, and eager hands seize the various treasures, each man, following his own "line," taking that which pleases him best. And the circle, clustered over that little heap of wet sand and "rubbish," had eyes for nothing else, until the "haul" was picked over!

Then the bucket-dredge received its share of attention. The wrench was produced, the three nuts unscrewed, allowing the inner rim to be removed, the dredge "up-ended," and the sand deposited in a heap on deck. A shovel, borrowed from the engine-room, passed the sand into the sieve, to be sifted out in the tub of water, and although at first it would appear to be almost "clean" sand, yet the siftings were, of course, the same as brought up by the other dredge—mainly fragmentary Polyzoa mixed with shells. The design of the bucket-dredge was to scoop up a thin slice of the sea-floor, and so secure specimens that burrow, as well as the more ordinary inhabitants of the bottom of the sea. The siftings in each sieve would be picked over roughly; then, if thought worthy another examination, would be bagged, and labelled at what depth taken. A proportion of the residue, the sediment in the bottom of the tub, was sifted again, this time through a fine hair sieve, and the finer siftings also bagged and labelled, to yield minute species of shells to future searching.

While the dredged material was being

disposed of thus, the Koonookarra had her turn, and steamed steadily seaward. The second drag was tried when we had nearly doubled our distance from the shore, and the "lead" showed an extra ten fathoms of water; the farthest drag was attempted at an estimated distance of 12 miles off shore. But Tasmania must have "tilted" suddenly, for with all our 200 fathoms of line out, the depth there was too great for our dredges to "bite." Even the little dredge behind—with the weight of the bucket dredge in front to give it every chance—came up empty! The only thing taken was a delicate pink-coloured salp, eight or nine inches long, lying across the handle of the first dredge, and that fell overboard before the dredge could be secured; but after desperate exertions, and with the aid of a long boat-hook, was "rescued" from the deep!

This was to have been our last drag, but the skipper had not the heart to take us back without one drag at the limit of our line, so about a couple of miles further in the engines were stopped, and we tried again with more success, the lead line giving a little over 90 fathoms.

The afternoon was getting on. It was a good steam back to Cole's Bay, with a couple of fishing parties to be picked up at Schouten Island. So we had to go—and went with mixed feelings of regret at having been able to explore so little in that deeper water (500 to 600 feet) yet with pleasurable anticipations of smooth water and a steady deck on the sheltered side of the Peninsula, which was rather attractive after five hours "outside."

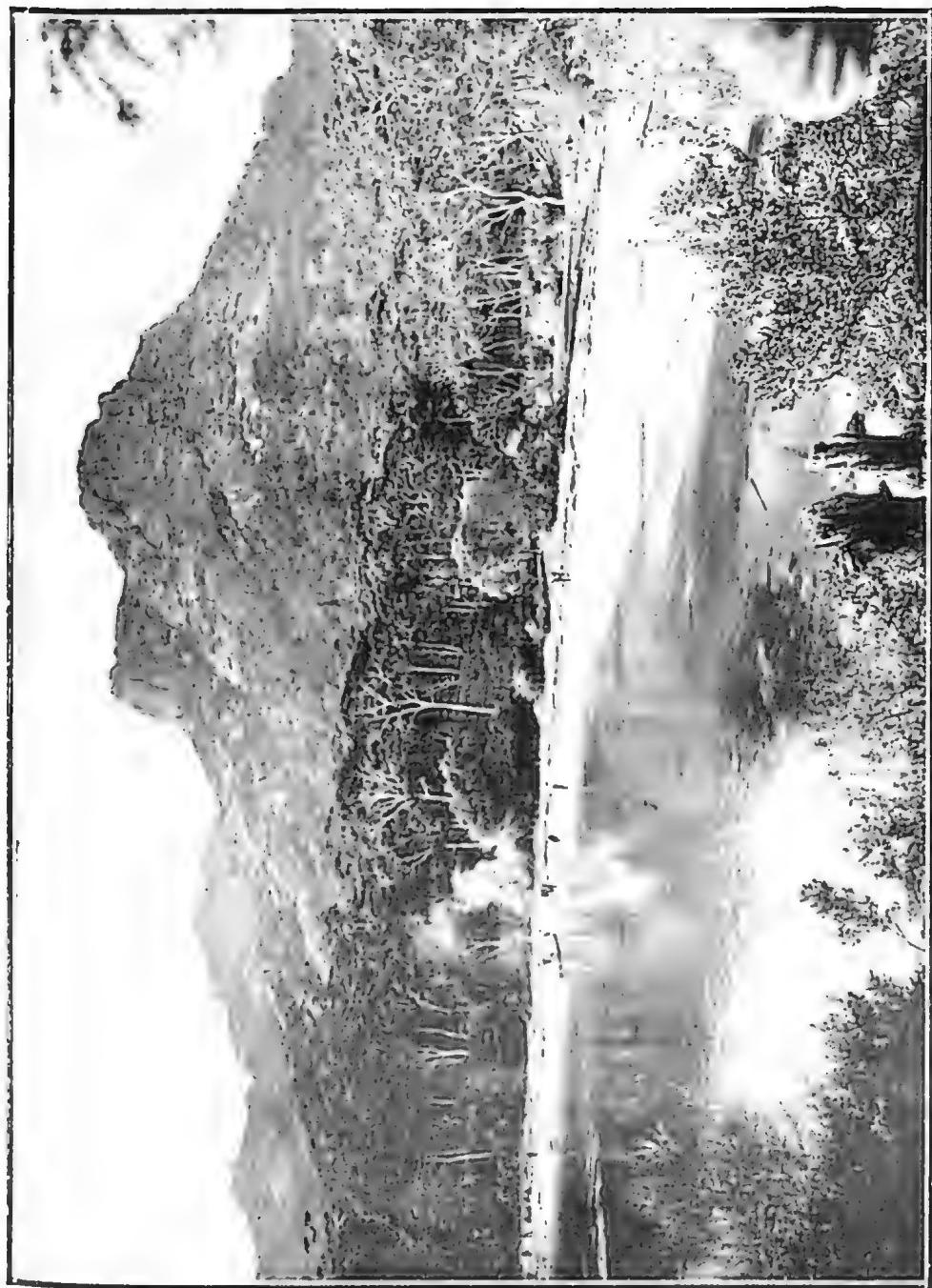
When passing again through the Schouten passage the deep-sea bucket dredge was unshackled, and the large dredge shackled on in its place, and where the channel broadened out, and the sounding line gave 17 fathoms, it was sent over for a try; for in such narrow waters, where the tide runs strongly, rich hauls are sometimes to be obtained. But it had not been towing many minutes when the taut line suddenly "gave," and dragged limply behind. The dredge had caught upon some obstruction below, and the steel-wire rope snapped! We could only wind up the line, and, perforce, leave the dredge, perhaps for some future anchor to catch in and bring again to the surface.

Only once before, I believe, have the Tasmanian waters been dredged to the depths reached by the Field Naturalists' party on March 26, and that was on Messrs. May and Hedley's memorable trip off Cape Pillar, about three years ago. Upon this occasion the intention was to test the range and distribution of the various species in the deepening waters, and for that reason the successive drags were tried at 40, 50, 60 fathoms, and so

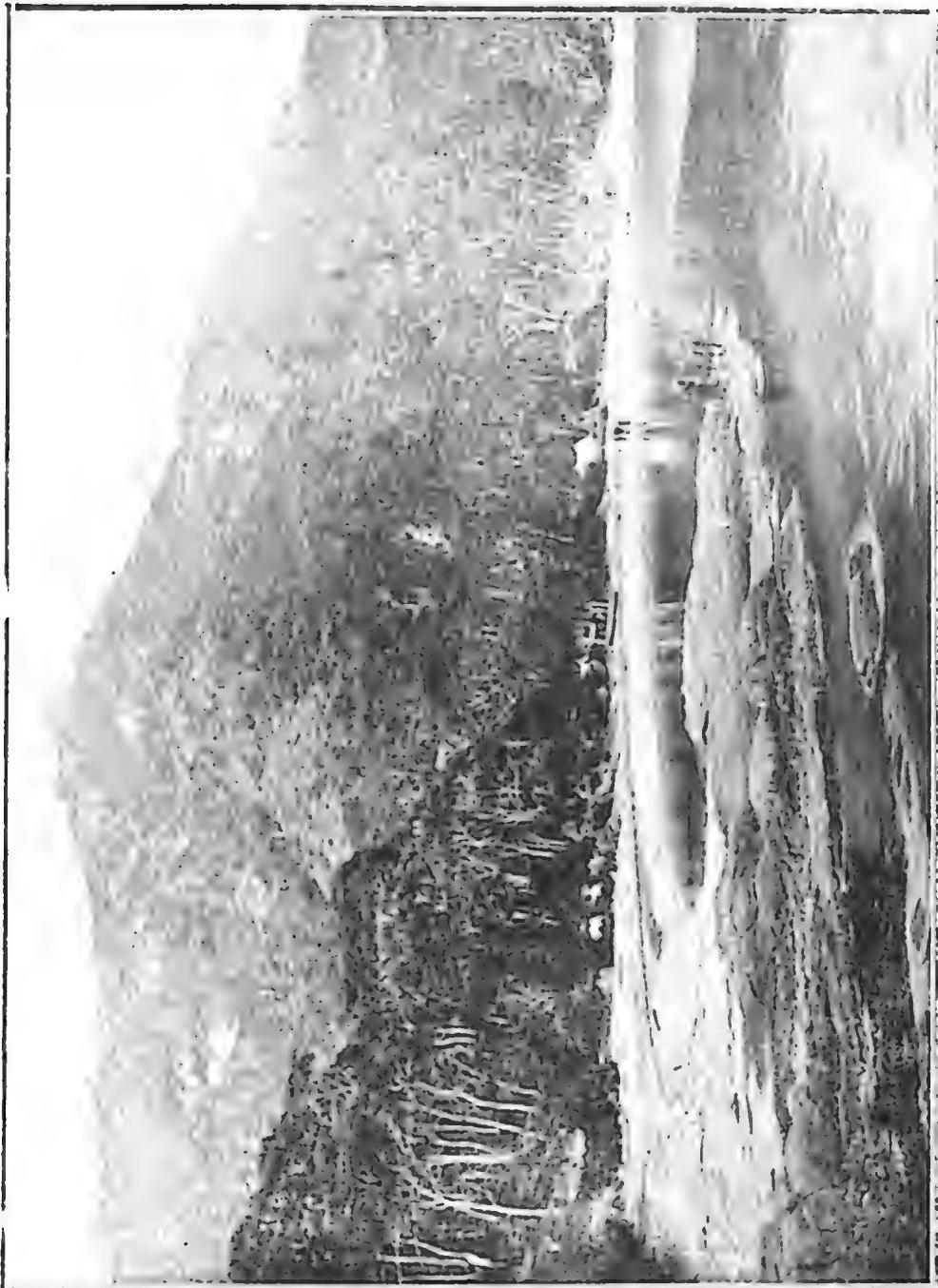
on; but one short day's work was altogether insufficient for such a task. One short drag, scooping a width less than 2 ft. wide—and that only for a short distance—at each 10 fathoms' depth, was altogether inadequate to show what was really there. Some indication of range was obtained, but we can only say "This was dredged at 40 fathoms, and no specimen obtained at 90 fathoms." But with only one drag at each depth it could not be asserted that any particular species did not extend to depths in which we got no specimen of it. If a subsidy could be obtained, a small steamer chartered, and a week devoted to systematic dredging, really useful and most interesting work could be done, and a good idea obtained of the distribution, etc., of the different species, mollusca, crustacea, and other life, off our Southern Tasmanian coast.

The bottom dragged on the 26th of March was sandy, covered with debris of broken polyzoa, but apparently not very plentifully strewn with shells, the most material being brought up from between 49 and 50 fathoms. As the sea deepened the sea-floor became a softer, less decided sand, until at 30 fathoms it was almost a muddy clay in appearance, still mixed with the same broken polyzoa and shells. Rare and interesting specimens of many deep-water mollusca were obtained—the pelagic Pteropoda, shells that are literally "a child of the wandering seas," owning no coastline with its restraining range of depth. One of these (*Carolina trispinosa*) was most noticeable from its peculiar shape, having a stout spike on either side, and then tapering off to a long tail. There were large clear white Brachiopods ("lamp" shells), deep-water Marginellas (familiarly known to children as "wheat grains"), and a Triton, the first specimen Mr. May has dredged alive. In addition to the more rare deep-water molluscs were fine specimens of more ordinary species, turritellas, etc.; but a most noticeable feature was the prevalence of small species. Not one large or even medium-sized shell was dredged that day. The largest I remember was a dead specimen of a young volute—apparently *V. pilosula*.

The same remark applies to the crustacea. There was not a single large one taken, although the individual creatures secured may be good specimens of their particular genera; the great majority taken belong to the division Anomoura. Lobster-like Galatheida (genus *Munida*) were plentiful between 40 and 50 fathoms. Bright red Hermit crabs, with peacock-blue eyes (two species of the family Paguridae), were very numerous; indeed, their number appeared to be only limited by the number of univalve shells available



VIEW OF BEACH NEAR THE CAMP.



ANOTHER VIEW OF THE BEACH.

for habitations. For every dead shell, apparently, was tenanted, however unsuitable it appeared to be. Long turrellas (Cleopatra's needles) would have their small mouth filled by a crab that was quite unequal to the task of dragging such a massive home about. One small shell I have really requires a lens to show the tiny claws of the little tenant within. One Pagurid was considerably larger than the rest, for it was the proud possessor of the largest shell dredged, the afore-mentioned volute! Of the crabs (proper) only two specimens were taken—or more correctly, a small specimen of the spider crab, and the mangled remains of another, of an allied species. From 90 fathoms three shrimps were brought up, representing two genera of the family Caridea, of soft delicate texture, and looking frail little creatures to stand the pressure of between 500 and 600 feet of water!

Of the sessile-eyed Crustacea, there were many specimens of the two great tribes of the Isopoda and Amphipoda, many of the latter most noticeable from their deep crimson colour.

Conspicuous, too, amongst the objects dredged in the deep water, were a few specimens of "solitary coral" (*Flabellum Australae*). It apparently grows from a slender stem, is fan-shaped, the two sides of the fan a little apart, smooth and hard on the outside, but semi-transparent. The space between the two gaping sides, filled with thin transparent, transverse "pleats," that resemble in shape the hymenium of a mushroom. The largest obtained was a living specimen, three inches spread of fan, nearly an inch "gape," and over two inches high.

The second day's dredging (or rather the part of a day available after landing excursions) was to have been devoted to Oyster Bay. But having to go to the Schouten Passage with fishing parties, the temptation to go "outside," and try the 40-fathom ground again, was too great to be resisted. We steamed out, and had four or five drags shortly after noon. The result was scarcely what we expected. For (except in the shells) there was an unlooked for sameness, so that those collecting other forms of life added little to what was taken on the first day.

Steaming back through the Passage, a couple of drags were tried inside. This time, though, we took care to pass well beyond the granite country, and did not lower the dredges until we had on either hand the sedimentary rocks that form the west side of Schouten Island, and the opposite shore of the Peninsula. Here we felt the loss of the large dredge, lost the previous day. With it we should have secured a great haul, for the little dredge came up full. If there were not many shells, there was an abundance of other

life—crabs, sea-eggs, sea cucumbers, sea-quirts—all sorts of creatures, mixed with the rubbish, small stones, etc. There were large velvety brown crabs (*Dromidæ*, two species), some of whom, not content with their natural coat of thick, close hair, wore also a mantle of sponge, shaped to fit the crab's body, and held in position with the last pair of legs. Spider crabs (*Maiinea*, three species), so loaded with weed, sponge, and sand, that, seen from above, they could scarcely be recognised as crabs. Portunnidæ, red active fellows; hermit crabs, as on the ocean side of the Peninsula; but here, larger specimens were taken, inhabiting old whelk shells.

Nor will I omit to mention an oyster that was brought up—an oyster of truly noble proportions—which was presented to the captain, who had helped us so well, and which was (he declared) the first oyster he had ever encountered too large to be disposed of in one mouthful.

Mr. W. L. May, the well-known conchologist, has forwarded the following concise report of the mollusca taken, after the dredgings had been picked over and the shells classified:—

Dredging off Schouten Island, in 40' and 80 fathoms of water, respectively 3 and 10 miles out. 26/3/1910.

The total take of mollusca amounts to some 200 species. Of these about 60 have not previously been known in Tasmania; about half of these again have been identified as described species, leaving some 25 unidentified, most of which are probably new to science. Besides the new species, some very rare species were taken, several of which had only been previously known by one or two specimens. Amongst these, living specimens were taken of *Septa petulans* (*Triton*) and *Cymatium kampyla* (*Triton*), previously only known dead. Amongst those new to Tasmania were a fine "slit-limpet" (*Emarginula superba*), a species which is only surpassed in the genus by two, or three species in the world. One specimen is larger than the type which was dredged in 300 fathoms off Sydney, and was, I believe, hitherto unique. Three species of *Triphora* lately described from off Adeiajide, S.A., were taken. They are small pointed shells, usually reversed, viz., wound up in the opposite direction to most shells. The great family of *Marginellæ* was strongly represented by about 20 species, several of which have not previously been seen. Tasmania is wonderfully rich in this beautiful little genus, and they occur in all depths from between tides down to 100 fathoms, some species being confined to very shallow water, others to the deeper, and some having a wide range in depth.

Among bivalves a very fine species of Cuspidaria occurred. This is a forma with a long rostrum or beak, and must be one of the very finest known. So far, it is unidentified. In the Schouten Passage a number of species of *Lucina*—*L. crassilirata*—were taken. It has strong concentric ridges, crossed in the interstices by distinct liriae.

Six species of Brachiopods (lamp shells) were taken, two of them new to us. One is a beautiful species, thin and almost transparent. It is *Terebratula wyvillei*, and the type was dredged by the Challenger off Valparaiso in over 1,000 fathoms. It has lately been taken in South Australia.

Of Pteropods—pelagic mollusca—about six or seven species occurred, being the dead shells that had sunk to the sea floor.

Two of these have not previously been recorded for Tasmania; in fact, until recent dredging off Cape Pillar the whole order was unknown here. These thin, glassy shells take very unusual forms, some being like lamp glasses, while others have three sharp spines, giving them a triangular form.

These researches go to prove more and more the wide distribution of species on our Australian "continental shelf," which extends from north of Sydney right round southern Australia, including Tasmania. This shelf is bounded by the 100 fathom line, after which usually the descent is rapid to very great depths. Many of the species taken have also been dredged in similar depths by Dr. Verco off Adelaide, and Charles Hedly off Sydney. Of course, a percentage will be found peculiar to each distinct locality.

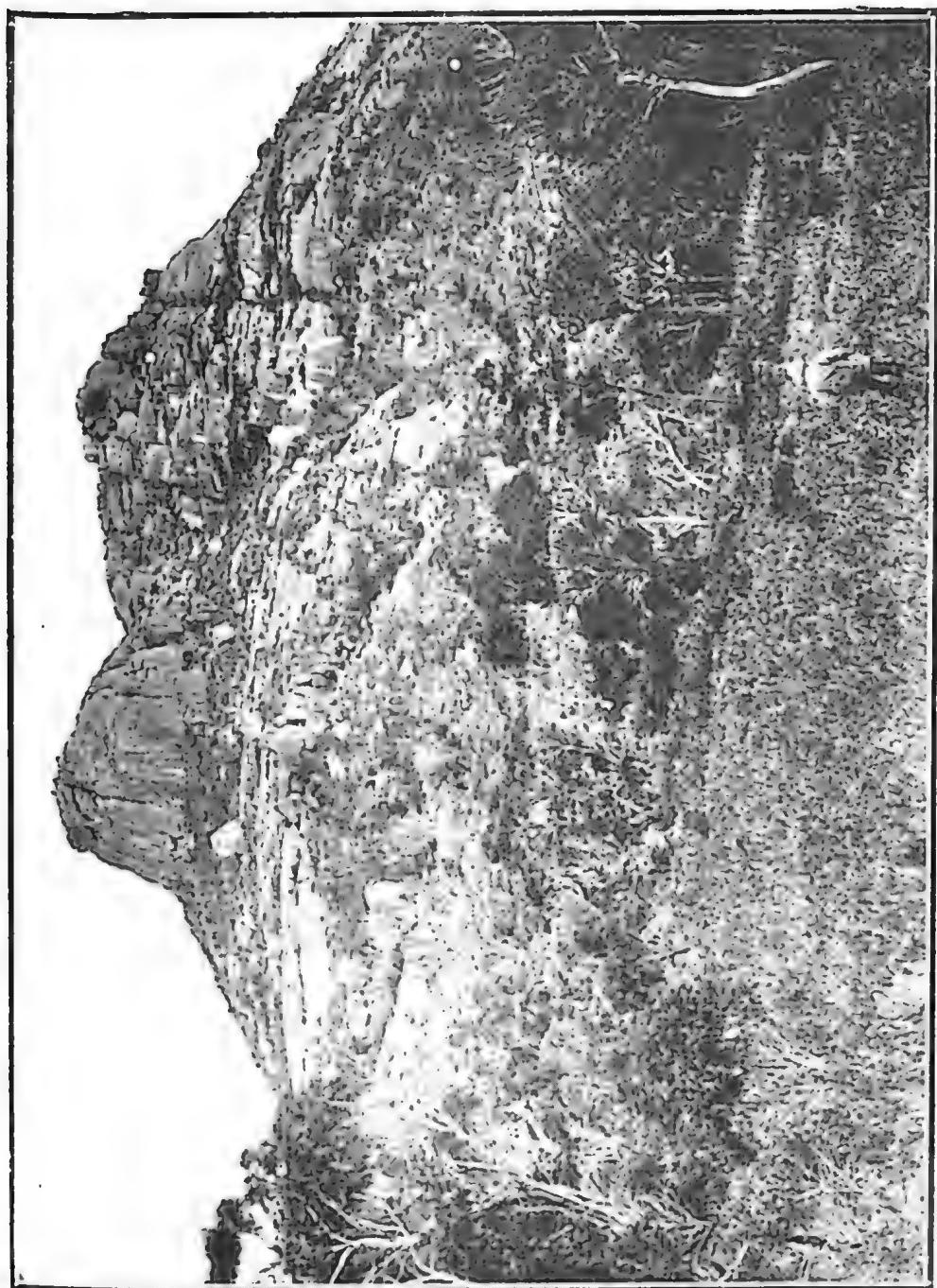
THE ENTRANCE TO WINEGLASS BAY.





A CREEK AT WINEGLASS BAY.

A RUGGED CREST, NEAR SLEEPY BAY.





MOUNT HAZARD FROM COLE'S BAY.

509. 3.

HON. SECRETARY:
CLIVE E. LORD,
LAURAMONT, SANDY BAY.



Tasmanian Field Naturalists' Club

11

EASTER CAMP-OUT

1911

To Deep Hole, Southport

REPORT ON CAMP-OUT

By E. A. Elliott, Hon. Secretary to Camp

NOTES ON THE BOTANY

By L. Rodway, Government Botanist

GEOLOGICAL NOTES

By A. D. Mackay, B.Sc.

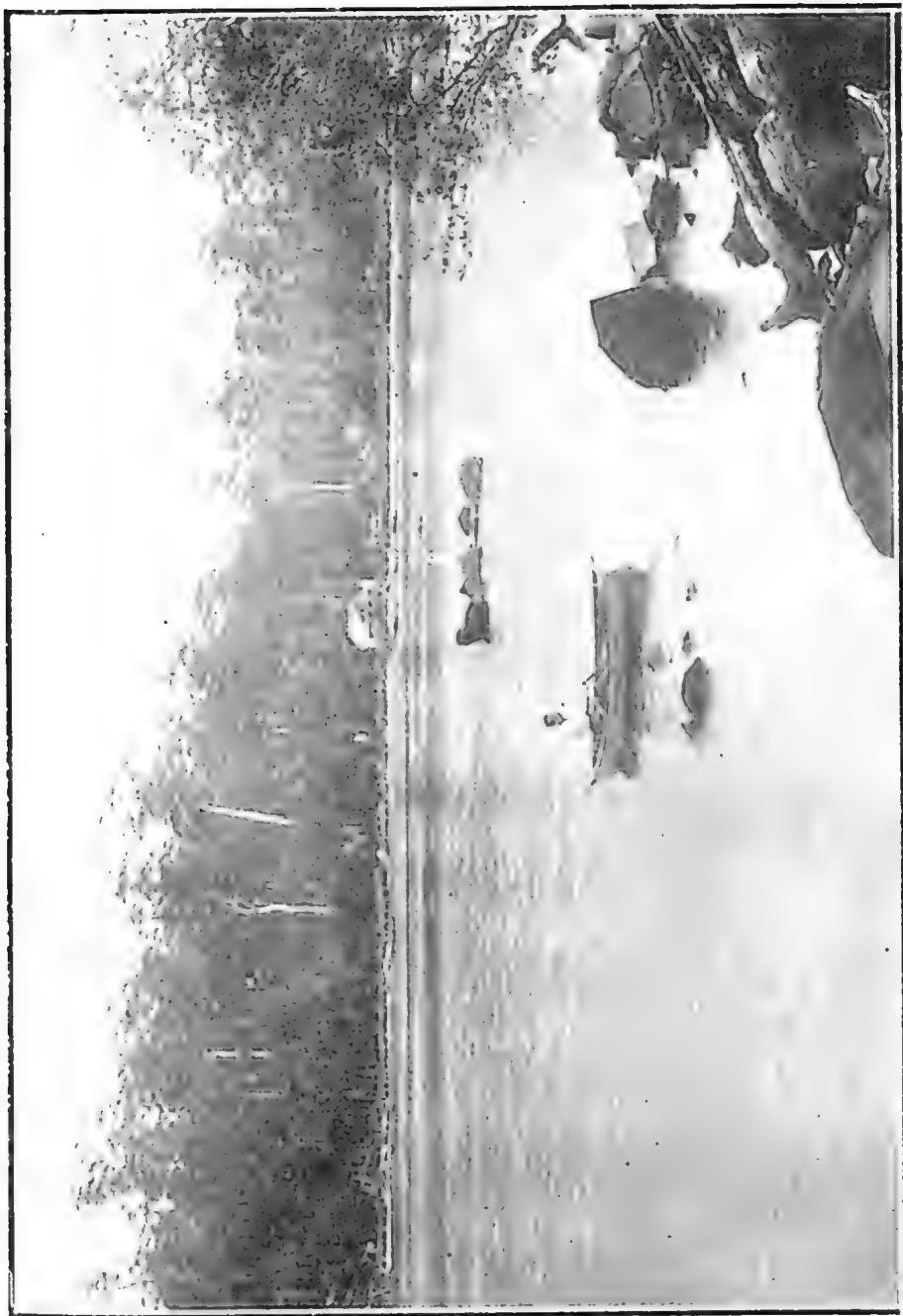
NOTES ON THE BIRD LIFE

By Robt. Hall, Curator Tasmanian Museum

Reprinted from "The Tasmanian Mail."

LIST OF CAMP MEMBERS

Mr. T. Atkinson	Miss Marsh
Miss Barnard	Mr. W. L. May
Miss N. Bargh	Miss L. May
Mr. H. V. Bayley	Miss I. B. Mather
Mr. J. B. Bayley	Miss B. Murphy
Miss Brumby	Mr. H. J. R. Overall
Mr. W. Crookall	Mrs. J. K. Reid
Mr. W. H. Clemes	Miss H. Reid
Miss Elliott	Miss M. Reid
Mr. E. A. Elliott	Mr. R. Reid
Mr. T. Thompson-Flynn	Mrs. Robinson
Mr. W. G. Golding, sen.	Mr. L. Rodway
Miss Gulline	Mr. P. Rodway
Mr. Robt. Hall	Mr. S. Rodway
Mr. C. T. Harrisson	Miss W. S. Ross
Mr. E. D. Harrisson	Mr. J. C. Simsor.
Mr. E. P. Harrisson	Mr. R. Stops
Mr. R. C. Harvey	Mr. A. W. Swindells
Miss Hookey	Mr. A. R. Tucker
Miss D. Hookey	Miss Tucker
Miss G. Kalbfell	Miss C. Walker
Miss E. Kalbfell	Mr. B. Watchorn
Mr. A. N. Lewis	Mr. Watson
Mr. E. Lines	Mr. E. Williams
Mr. Alec. Lord	Mr. A. Winterson
Mr. C. E. Lord	Mr. C. Wolfhagen
Mr. D. Lord	Assistants.
Mr. R. McAlister	W. J* Cole
Mr. A. D. Mackay	E. Darrell
Miss Maclean	W. W. Woodward



ROCKY BAY, RECHERCHE.



AT BREAKFAST.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1911

By E. A. ELLIOTT, Hon. Secretary.

It is pleasing to record that the seventh Easter camp-out of this club has been successfully held, the site of the camp being Deep Hole, at Southport. It may be interesting to mention first the sites of earlier camps, and to give the numbers present:—

- 1905.—Bream Creek; camping party, 9.
- 1906.—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907.—South Bruny; camping party, 27.
- 1908.—Maria Island; camping party, 27.
- 1909.—Wineglass Bay (Freycinet Peninsula); camping party, 84.
- 1910.—Col's Bay; camping party, 97.
- 1911.—Southport; camping party, 60.

During the last three camps ladies have attended.

It will be seen from the above that in comparison with former years this season's camp was no mean one, and it would doubtless have proved a record if the site had not been changed several times, owing to unforeseen circumstances. Port Davey was first fixed upon, but a steamer could not be procured to convey members there. Fortescue Bay, near Port Arthur, was agreed upon as an alternative sit^t, but this was abandoned in favour of Recherche. Then opinion seemed to lean more towards Southport as a camping ground, so that the camp was finally settled there. The s.s. *Togo* was secured to take most of the party, and Mr. W. Golding took several in his steam yacht *Edina*. The *Edina* remained at the camp, and was placed at members' disposal for dredging, as well as for taking parties to places of interest. There were also the motor-yacht *Fancy*, which was used by fishing parties, and two smaller boats. These four made up the camp flotilla.

Leaving Hobart at 11.15 p.m. on Thursday, April 13, and proceeding down D'Entrecasteaux Channel, Deep Hole was reached in four hours time. Disembarking was at once proceeded with, this being helped by the light of a full moon. A large fire was started on shore, and here the ladies and a proportion of the men and juniors grouped themselves to

wait for daybreak, whilst parties explored the vicinity for camping grounds, or carried goods along the jetty. The laborious and more or less exciting landings at former camps by boating the members and their impedimenta from the ship was dispensed with in this case, owing to the fact that a fine jetty used for stacking timber for transhipment to various parts of the world was erected there. Deep Hole obtains its name from being a fine anchorage in a more or less shallow bay. Some huts, commodious and clean, close to the jetty were found to be unoccupied, and were used as cook's quarters. The ladies' tents were erected on the south side, and were bordered by one stream; the men's tent, scattered towards the north, were bounded by another.

Immediately after breakfast had been enjoyed parties set about numerous duties in the camp, and when these were done, left in small detachments for a walk across the hills to Southport Lagoon. This is a large sheet of shallow water, with several islands, and in the background the fine La Perouse range of mountains shows up with their snow-capped peaks—snow being on these mountains for nine months of the year. On one of the headlands close to the entrance to the lagoon is a monument erected in memory of the many who perished in the convict ship *George III.*, which struck a submerged rock now called after the ship, in 1833. Most of the party visited the monument, and several photographed it.

Trips were made to Recherche, where the Catamaran coal mines and sawmills were visited, and the scenery en route was much admired. Sawmills are numerous in this part of the country, some of them being within a few miles of the camp. Not one was working fully during any part of our visit, but descriptions were given, showing the manipulation of logs in their conversion into sawn timber. The lengthy tramways into the forests were frequently availed of by parties from the camp.

The chief excursion by members of the camp was that made to the Ida Bay Caves, when the whole party of 57, leaving only the three cooks in camp, went

up the Narrows to the Lune River. Most beautiful scenery was viewed all the way on the water, and made one wish to see more of that part of the country. Fifty-two formed the party to the caves, and much credit is due to the ladies and younger members of the party for their endurance on a decidedly fatiguing trip. Unhappily no one in the party was sure of the track, although some had been there several years ago, yet the timber-getters had so altered the character of the country that the way was lost, and for some time the party was bushed. In the end, however, the caves were found, and a short cut through virgin forest was made to them from the tramline where the party was waiting. The entrance to the caves is magnificent; about 200ft. of cliff being surrounded by tree ferns and other beautiful foliage. A creek runs into the entrance; and as this is followed vault after vault is discovered, and many of them are fringed with stalactites hanging from the roofs or ledges on the walls. In several parts stalagmites rise from the floors. The return that day to the launches was late, and part of the journey on the water was by moonlight—it was a very tired and hungry party which sat at table in camp that evening.

During the camp the fishing done was poor. Seining on the beach resulted in only a few flounders being taken, and fishing from boats in the bay and at the Acteon Islands gave no better luck. None of the fine hauls taken on the East Coast trips cheered the fishers and helped out the larder.

The scientific results are given by the experts who attended, but it may be here stated that dredging was only undertaken in shallow water, and with very poor results. The botanists of the camp had more to work at, and several good collections were made. The geology and bird-life will also be given in following reports.

On the whole, the camp was a very successful one, and many things worked together for the enjoyment of all.

BOTANICAL NOTES.

(By L. Rodway, Government Botanist.)

The botany that engaged the attention of students at the Easter camp-out was fairly extensive, ranging from Recherche to Ida Bay Caves. It was all the more interesting to those living in Hobart in that it included many flowering plants commonly associated in our minds with the West Coast, and not found near the capital. Climatic difference was clearly indicated by such plants as myrtle, lau-

iel, sassafras, and horizontal growing at sea level. Too much must not be inferred from this, for it is probable that the unfitness of our home climate to properly support these forms is due to the destructive habit of man clearing out vegetation that would otherwise have prevented injurious winds from reaching the soil.

Two proteas were met with that are typically western, namely, the native plum and white waratah. Plum is uncommonly like laurel when in foliage, but the flowers are small and of a very different structure, and the fruit is round, fleshy, and purple, structured much as a plum. It is not pleasant to the taste. White waratah is really related to waratah, but not a bit like it. The flowers are small, white, and numerous, arranged closely along erect, white stalks. This plant is fairly common on the damp hill-sides in the vicinity of the caves. Both plum and white waratah are of exceptional interest, in that not only are they confined to the western part of Tasmania, but neither they nor any very close relative are to be found in any other part of the world. They, like many other Tasmanian plants, are remnants of a lost flora that once covered a now lost land.

Eucryphia grows abundantly. It is a most symmetrical tree, and bears large, white flowers during some months of the year. In low lands it is generally in flower at Easter, but in many places it is found flowering as early as Christmas. This is often called leatherwood, but it is not the original leatherwood of the coast. Horizontal is closely allied to Eucryphia, though its small, obscure flowers do not suggest this at first sight. It comes further east than most of the West Coast stuff, as it occurs on Mount Wellington, Uxbridge, and Mount Field. In anything but very wet and protected spots it is persistently erect and slender. In suitable spots where moisture, shade, and stillness encourage, it will grow with great rapidity till the weight of the long bough overcomes the resistance at the base, and it proceeds to lie down. Now, from every node there grows up a strictly erect and slender branch. When the mass of these acquire sufficient length to give them the power they twist the parent stems and lay themselves procumbent. Under suitable conditions this will produce a perfect network of impenetrable stems for thirty feet above the ground.

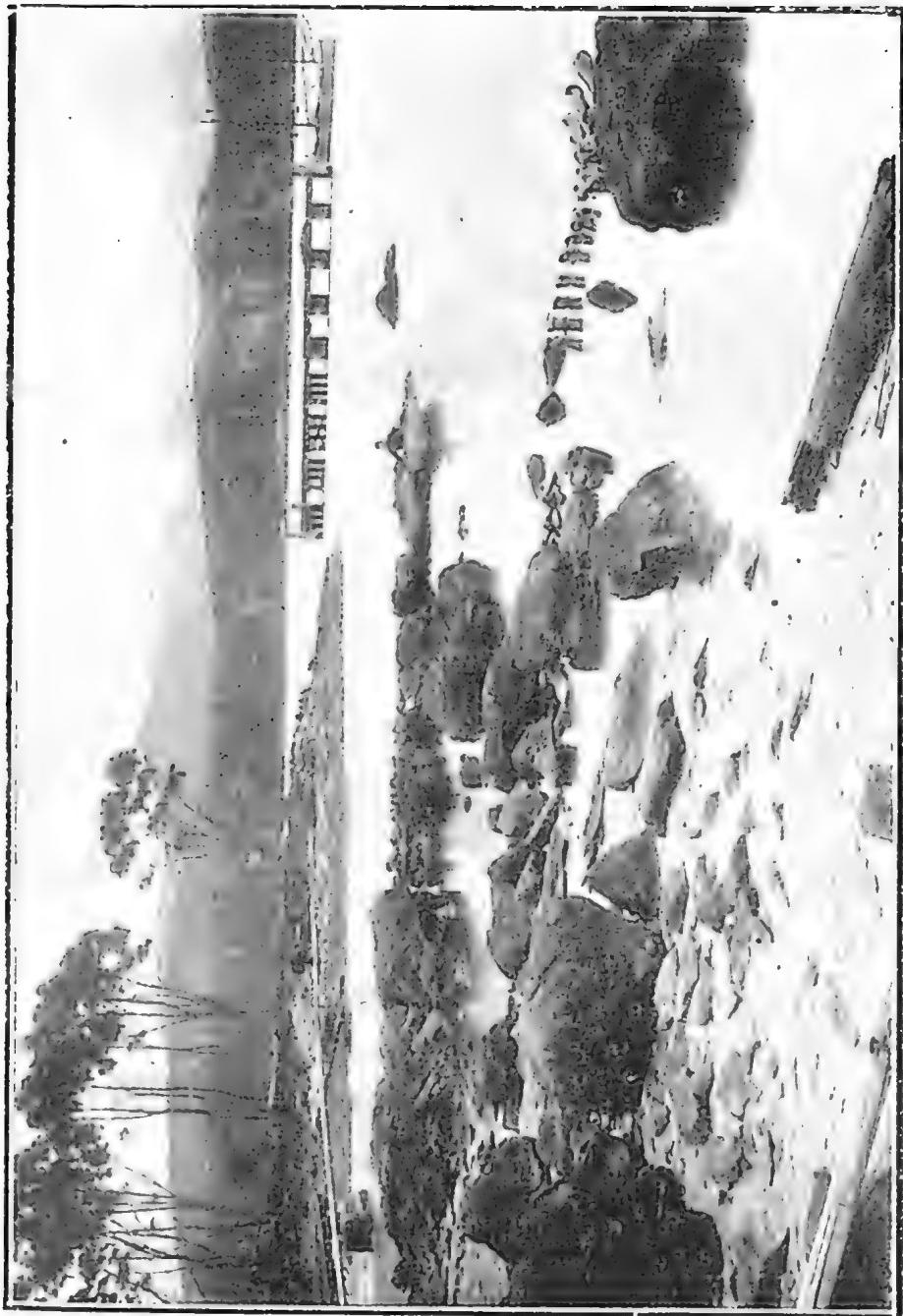
The district offers a great variety of the heath family. The prevailing Epacris is not the common heath, but one that has not yet received an ordinary name. From the locality where it makes its home it may be called swamp heath. It is somewhat like our rocket, but the



"STACK OF BRICKS" AND SOUTHPORT ISLAND IN THE DISTANCE.



CATAMARAN, RÉPUBLIQUE.



L.A. PEROUSE FROM "THE PIONEERS."



GROUP OF MEMBERS



ATTENDED THE CAMP.

THE BEACH AT DEEP HOLE.



leaves are broader and more robust, and the flowers, though very similar, are less plentiful along the stems. Climbing heath with its beautiful pendent, crimson flowers, was in quantity wherever the wood was dense and damp. Two shrubs bearing beautiful puce berries were plentiful. Near the caves they were exceptionally fine. The commoner one is the cross-leaved puce-berry. The other, which was more plentiful a little way up the Catamaran, is Gunn's puce-berry. On the coast many of the party gathered fine specimens of the maroon fruited Billardiera. This form is almost confined to the immediate vicinity of the sea, but not absolutely so, rarely it has been found inland. If the seed of this has its coat lightly filed and then soaked in hot water for some hours it will germinate almost at once. There is one unfortunate feature about it, namely, it does not always come true to colour. The seedlings often produce berries of a dirty purple tint. Near the sea, in the vicinity of the lagoon, was found the coastal scented bush. There are many forms of this, and it is yet a matter of individual opinion where specific separation should come in.

The track from the Lune to the caves passes along a swampy button-grass plain, and here was found extensively the beautiful little butterfly plant. The flowers, as usual, were usually two, purple, on top of a slender stem a few inches high. Occasionally specimens with white flowers were seen. The plant, when growing in mud, develops few or no green leaves, for the plant is carnivorous, and the leaves are specially adapted to supply it with animal food. The leaves, especially in water, are threadlike, and very divided; they have the appearance of lateral shoots, but are true leaves. Upon branches of these leaves are developed peculiar little traps, specially suited to catch small animals; they are roundish, about the size of a medium-sized shot, and have a wonderful little trap-door, allowing an animal to enter, but preventing its exit. The inside of the chamber has on its surface two kinds of processes. One kind, which are many and minute, look like miniature racks; the other are small papillæ. The rack-like objects appear to be special sense-organs for telling the plant when there is a digestible beast in its pouch; the papillæ then secrete an enzyme that converts protein into a soluble condition. The proteinaceous parts of the animal are accordingly dissolved and absorbed, to the benefit of the host, only the chitinous portions of the prey being left in the sack to tell the tale.

In the healthy country about Southport the curious Campynema is common. It

is an erect little herb, a few inches high, with one or few erect green flowers; there is one strap-like leaf arising from the base of the stem. No one would be taken by its beauty, but a botanist should rave over it, for it seems so isolated. It is only found in Tasmania, and nothing like it occurs anywhere else. It seems to be distantly related to the iris family, and no farther from the amaryllids; it seems too much to make a family simply for its reception, so it finds any place where temporary convenience suggests. Tasmania is exceptionally rich in endemic plants, and many romantic theories may be erected on this fact, at least one of which will probably be true. One little fern was met with that drew forth the admiration of all taking an interest in plants; it was *Hymenophyllum marginatum*. The leaf is quite simple, about half an inch high, with a well-developed rib, and a thickened margin. It looks for all the world like one of the ligulate liverworts, and no doubt is often overlooked on this account. Hitherto it has only been recorded from few places, and now "near Ida Bay Caves" must be added to them. Mosses and liverworts, fungi, and lichens abound in the dense forest, but there is no room for them here.

Southport and the neighbouring coast has been a favourite collecting ground for seaweeds. Many interesting forms have been gathered here in days gone by, principally by C. Stuart, and they were published by W. H. Harvey in his splendid work on Australian Algae. Unfortunately, pressure of time prevented us from devoting much time to dredging, yet we gathered some good plants, chiefly between the Acteon Island and George III. Reef, in twenty fathoms of water. The best were *Euptilota jeannerettii* (Harv.), Schmitz, *Polysiphonia hystrix* (Harv.), *Thamnoclonium claviferum* J. Ag., *Amphiora charoides* Lamour, *Bellotia eriophorum* (Harv.), and *Caulerpa cactoides*, R. Br. The last was the most interesting take, as it had not previously been recorded from Tasmania.

GEOLOGICAL NOTES ON THE SOUTHPORT DISTRICT.

(By A. D. Mackay, B.Sc.)

At the camp geological exploration was carried on under a disadvantage. This class of work requires more time than could be given, and, moreover, the wooded nature of the country so prevented observation of the underlying rocks that these notes must necessarily be imperfect.

So far as could be ascertained, the series exposed in the district is as follows:—

9. Slag heaps.
8. Native shell mounds
7. Raised Beaches.
6. Diabase.
5. Fingal series.
4. Ida Bay series.
3. Southport series.
2. Limestone.
1. Quartz grits.

1. These quartz grits were found apparently underlying the limestone at the Ida Bay caves. They are composed of quartz particles cemented together by a substance like kaolin. They are not well exposed, owing to the vegetation.

2. At various parts of Tasmania, notably at the Great Bend of the Gordon River, we find exposures of limestone. This limestone is of lower Ordovician age, and has been named the Gordon River limestone. It is generally of a dark grey colour, regularly bedded, and somewhat argillaceous. At Mole Creek, Gunn's Plains, Ida Bay, and elsewhere, caves have been worn in it by surface waters. Those at Ida Bay were visited by a camp party. At this point the rock is of a dark grey colour, with signs of metamorphism. It is hard and brittle, with veins of calcite. Though usually of fine texture, it may become of a fairly coarse crystalline structure when it is lighter in colour. No organic remains were observed, but it may be that the microscope would reveal them.

The caves themselves form a channel for a stream which flows into them. The outlet end of the caves is unknown. It would appear that a tributary of the Lune River, in the process of base-leveling its valley, exposed these rocks, which were sufficiently porous to absorb it. The water gradually dissolved the rock away, until a small inland drainage basin was formed. The track to the caves goes down what was seemingly the old creek valley.

A somewhat similar example can be seen forming at Circular Ponds, near Mole Creek, in the same limestone.

The caves take the form of a series of large halls, rather bare of stalactites, but with one or two massive examples. These stalactites are formed by surface waters percolating through the rock, and dissolving it. When exposed to the air in the caves they deposit crystalline calcite, both on the roof and floor. These projections continue to grow till they meet. The white secondary material contrasts strongly with the dark colour of the massive rock. One very interesting specimen was secured consisting of a

waterworn fragment of a stalactite. It showed the cone-in-cone structure, as well as the undulating surface produced by the water in partially re-dissolving it. A soft pink incrusting mineral found near the cave mouth was tested, and proved to be montmorillonite (Hydrous aluminium silicate).

3. At Southport, sandstones, mudstones, grits, and shales are exposed of Permocarboniferous age. The sandstones are light-coloured, and show spangles of mica. The shales are of a grey colour. These beds resemble the Knocklofty series, which come between these and the Ida Bay series in point of age.

4. The Ida Bay series were not inspected by camp members. They consist of coal-bearing shale and sandstone.

5. Immediately above the Ida Bay series are the beds belonging to the Recherche basin of the Fingal series. These are known as the upper coal measures. A party visited the Catamaran colliery, and by the courtesy of the manager were shown round underground. The colliery is situated about a mile from the bay. The beds consist of sandstones and shales, with coal seams dipping northwest at about 10deg. Two seams are known, an upper one 9ft. thick, and a lower one 6ft. thick. Only 5ft. of the upper seam is at present being worked. Bands of clay occur in the coal, but are capable of easy separation. The coal is bright, and hard, and assays 66–69 per cent. fixed carbon, 23–27 per cent. volatile matter, and under 4 per cent. ash. It is claimed for this coal that it is the best in Tasmania the assay of the coal from the Cornwall and Mount Nicholas collieries being 57–61 per cent. fixed carbon, 18–27 per cent. volatile matter, and 8–15 per cent. ash.

An interesting feature observed by the party was the local crushing in of the floor by reason of the superimposed weight.

6. Some time after the deposition of the upper coal measures the island was subjected to a great intrusion of diabase. This rock is taken to be of upper mesozoic age. It occurs in quantity in the south-east as the caps of hills. It forms the great central tableland, and is found in the north at Mersey Bluff, Port Sorell Point, and elsewhere. It is of medium grain and dark colour. No flow structure is visible. It is composed essentially of pyroxene and a basic felspar (Labradorite). While it is of basic composition, its silica contents being 52–57 per cent., it is typically free from olivine, which is a useful guide in field-work as distinguishing this rock from tertiary basalt.

The rock has solidified in the form of dykes, laccoliths, and sills in the midst

SOUTHPORT LAGOON.



A PARTY ON THE MONTYTHON THAT WAS BRETTED AT SOUTHPORR HEAD IN MEMORY OF
THE CONVICT SHIP GEORGE III. THAT WAS WRECKED THERE.



of the older rocks. Unfortunately most of the contacts are obscured by vegetation, or overlying soil, but those which are seen show that the rock is of finer texture near the contact, while the sedimentary rocks show evident signs of meta-morphism. The sandstones and shales of permo-carboniferous age become locally hardened into quartzites and chert, coal is injured, and faults are developed. Several fine sections showing these features can be seen near Hobart, such as Augustaroad, Huon-road, Bellerive, and Sandford.

One such example was seen at Southport not far from the "Stack of Bricks." The section exposed at the neighbouring cliffs shows a series of permo-carboniferous mudstones and shales horizontally bedded at the western end, and inclined and dipping about 20 degrees west further east. Here they can be seen to be lying on diabase, which continues to the channel. The igneous rock is of fine texture at the contact, while the sedimentaries have been so locally hardened as to give rise to a small promontory.

When such a laccolith is exposed by denudation the igneous rock, being harder than the sedimentaries, is eroded more slowly. A mountain is formed often surrounded by a ring of sedimentaries. Mount Wellington is such an example. In other cases the locally-hardened sedimentaries may be left as a wall running round the central core. I am informed that Adamson's Peak and Mount La Perouse are examples, but cannot speak from personal knowledge.

Near the George III. monument some specimens were obtained of a rather decomposed portion of the diabase, but interesting as plainly showing twinned crystals of felspar. The rock is here of slightly coarser grain than is usual.

In cooling this rock cracks, and frequently assumes a columnar structure. The Organ Pipes on Mount Wellington are an example. These cracks afford passage for waters, which decompose the constituent minerals of the rock, and redeposit various substances in these cracks, such as magnesium and calcium carbonates, limonite, and hydrous silicates.

7. After the diabase intrusion the country suffered from a prolonged denudation, which is still proceeding. Oscillations of land and sea followed, during which clay and leaf beds have been formed. The beds seen at Sandy Bay are an example. At a later date basalt was poured out over a great part of the island. The rock exposed at the Alexandra Battery, near Hobart, belongs to this. Subsequent elevation of the land surface has given rise to the deep gorges in the north and west, while still later depression has produced drowned valleys. Examples are the

Tamar in the North, and the Derwent and Huon in the South. The various bays in the south-east of the island would result from the same cause. A slight elevation has caused raised beaches. These are visible all along the North Coast, at Wineglass Bay in the east, and at Southport and Cox's Bight in the south. The flat land lying round Deep Hole and Southport Lagoon will be a familiar example to camp members. The camp was established on it. This flat is of a very sandy nature, and the wind has heaped it into sand dunes, which are slowly trawelling seawards. Their advance is retarded by the bushes growing on the sand, but their shape is frequently typical. The best example seen was near the George III. monument.

8. At various points on the coast line shell piles are found, together with aboriginal worked flakes. The heaps are marked from natural ones, consisting invariably of edible varieties only. What may be an example was seen not far from the camp.

9. A deposit which may, perhaps, be worthy of mention in connection with the camp is the pile of slag at the pier. This slag is neither natural nor Tasmanian, but apparently has been brought from South Australia as ballast for ships. The heap also contains pieces of tertiary basalt, sandstone, and quartzite.

Resources.

While there is no reason why mineral deposits should not be found in the pre-Devonian rocks (the quartz grits and limestone), no signs of mineral were seen. The limestone, however, is hard enough to be used as a building stone. A sample of the massive rock from the caves took a high polish. Further, when the rock is burnt it provides a very good lime. The lime which is produced from these beds at Gunn's Plains and Beaconsfield finds a ready sale.

The coal which is mined in the Lower Mesozoic measures is of good quality, and should prove of great importance. The water carriage is good, but harbour facilities are poor. It is to be hoped that the near future will see this industry successful.

The diabase is used in Launceston for road metal and as a building stone. As it is a very tough rock, it is useful for works where dressed faces are not required.

The soil of the district is rather poor, but may suffice for apple-growing. It is quite capable of producing splendid timber, however, which deserves to be better looked after than it is. It is noticeable that many of the trees and shrubs found on the West Coast occur here.

In addition to these resources the scenery is of such a nature as to make the trip quite worth the while for tourists if accommodation were provided. Adamson's Peak and Mount La Perouse are both fine mountains, with pretty gullies and waterfalls. The Ida Bay Caves also deserve attention.

BIRD LIFE NOTES.

(By Robert Hall, C.M.Z.S.)

Southport is not the most inviting place the world has to offer the man who has an interest in bird life; it lacks the rich lagoons that give food in abundance to the wading birds, and the neighbouring hills are not well endowed with fruit-bearing trees, or insects in fair quantity, to provide for passers in general. Hope lay in the Southport lagoon for members of the plover family, but this was not realised. We had a reasonable expectation of seeing the last of the migratory birds before they started on their journey to the far north. Every year at this season (April) the ring-tails and the golden plovers set out for Northern Siberia; they have spent the summer in the South of Australia, where they have hunted the great lagoons for food, and when April comes the longing for the old home takes possession of them. It is then that they set out on their 8,000 miles' flight, passing along the east coast of Australia, through Northern New Guinea and Manchuria, arriving about three weeks later in the "frozen north." Here they await the melting of the snow before proceeding further on their way. The snow melts at the rate of 1,000 miles a week, and within five weeks of the birds having set out from Southport they have arrived within the basin of any one of the great N.E. Siberian rivers.

These were the birds in which we were interested, but we were only able to record the fact that they had left. We looked for another interesting water bird, Richardson's skua gull. It, too, nests in the northern hemisphere, but occasionally one finds stragglers at this time of the year in the estuary of the Derwent; this year we could find none.

The silver gull (*Larus novae-hollandiae*), fortunately, was free from the worry of its parasitic cousin, the skua. It paddled quietly about the fringe of the Southport lagoon. A gull-like bird, twice the size of the silver species, flew round the margin of the bay, close by our camp. It was the young of the pacific gull. During its first year of life it is brown. If we visit the

same camp next year we should probably find this bird brown and white. If it were still about the camp on a third year's visit the light brown would have disappeared—it would be mostly snow-white, with an orange bill.

The young of a closely-allied species (*Larus dominicus*) has been known to mature in one year, but this appears to be quite exceptional. Two members of our party visited the Acteon Islands, bringing back specimens of two other sea birds, the fairy penguin and the short-tailed petrel. This petrel (*Puffinus tenuirostris*), known to many as "mutton-bird," was found in burrows of the ground, in an interesting stage of its life history. The whole of the downy plumage was being pushed away from the bird by the tips of the coming "adult plumage." The young were now being temporarily deserted by their parents; they appeared to be just one mass of oil and feathers, and the parents were encouraging them to leave their nests by staying away from them for ten days. Without a fresh supply of food, the young would have an opportunity of thinning off, and finally in the twilight leave for the ocean.

The pipit (*Anthus australis*) and the sombre scrub-bit (*Sericornis humilis*) were two other birds found on the Acteons. Nearer our camp, which was pitched upon a raised beach, we met several families of the spine-billed honey-eater. They were the most common birds about the camp. The most noisy one was the crescent honey-eater (*M. pyrrhoptera*). One day we were visited by a flock of sordid wood swallows. It was a grief to us that this beautiful little bird should have been, apparently, ill-named. Apart from its grace of flight and usefulness of habit, it is interesting on account of its plumage. It has what are known to naturalists as "powder downs," i.e., groups of disintegrating feathers, hidden beneath the contour feathers.

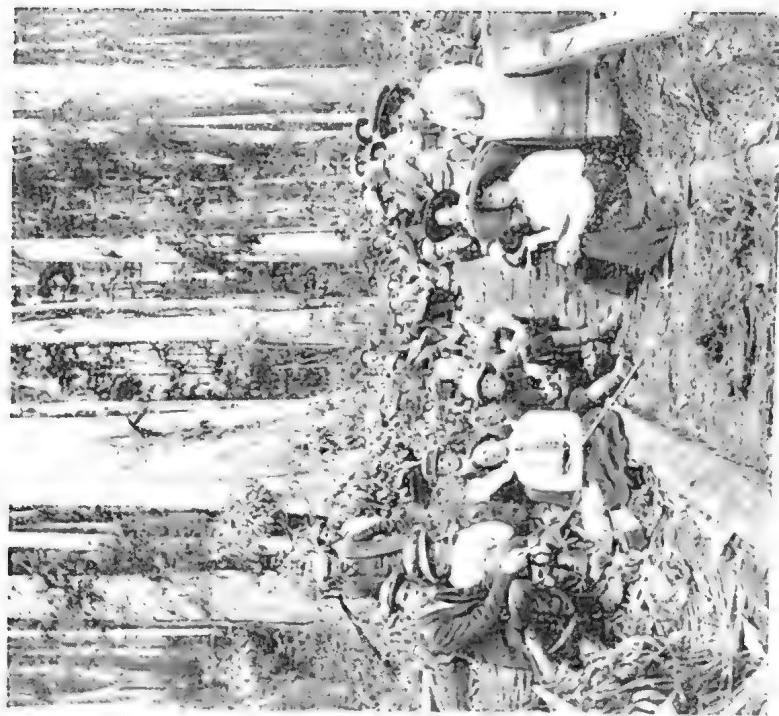
We had expected to be free from our feathered friends of the city; but no, a flock of starlings came upon us, the *Sturnus vulgaris* of London and Hobart. These hardy little fellows will fare better in this inclement climate than many another insect-eating bird.

Among the parrots, the yellow-vented species was fairly numerous. It was the only species we saw. Early on Easter morning we heard a solitary thrush, not the bird that "sings its song twice over," but the grey thrush (*C. rectirostris*) of our own woodland. In the early morning in the spring of the year this bird sings very finely. Had the birds of the district been at all numerous, we should have known the morning that we landed



THE BEACH AT DEEP HOLE.

A HALT ON THE WAY TO IDA BAY CAVES.



LANDING ON SOUTHPORT ISLAND.

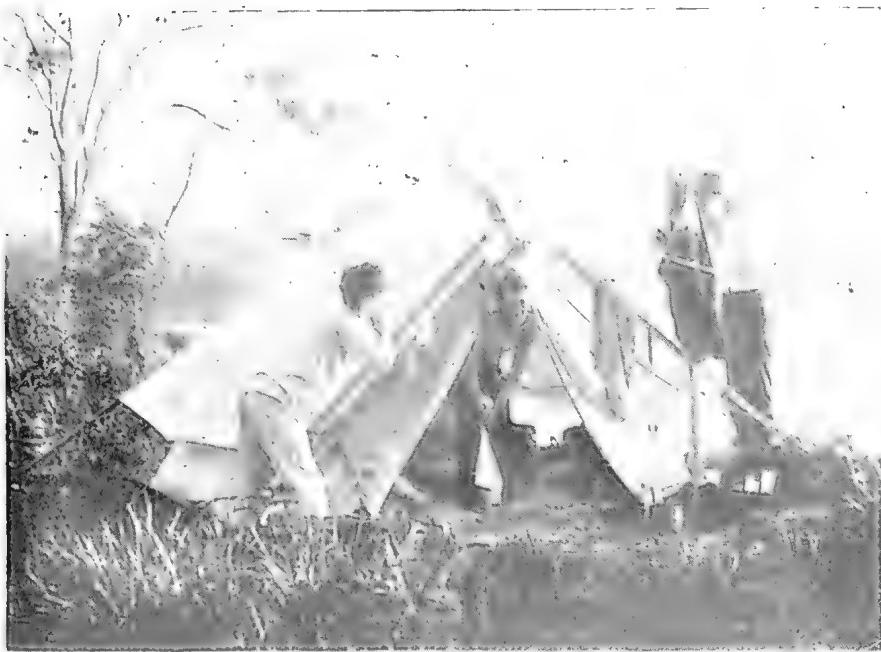


as we stood round the camp fire between 4 and 6 a.m. As it was, we heard very little.

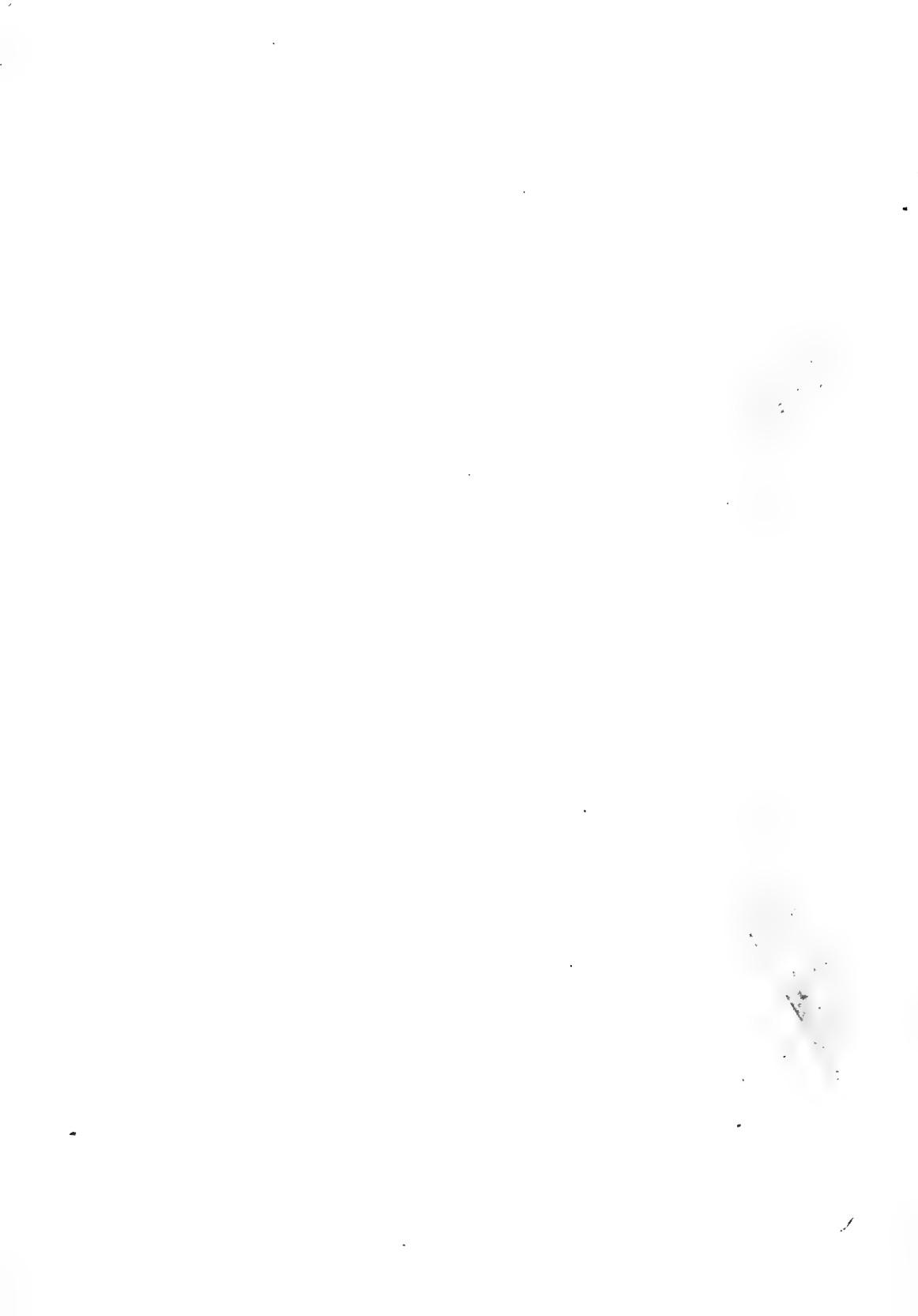
The butcher bird (*C. cinereus*) was abroad with its autumn song; occasionally the note of the dusky fantail (*R. diemenensis*) would drift to us over the marsh. At sunrise came the call of the crow through the tree tops, while in the open timber below the scarlet-breasted robin might be seen. Away in the hills,

beyond the Narrows, we found the dusky robin (*Petroeca vittata*). Our fishermen brought a white-breasted cormorant into camp, and told us that they had seen the large sea eagle (*H. leucogaster*) in the course of their wanderings. These two last closed the list of birds that we were able to identify with any certainty.

The few species we did see were sufficient to provide an interest and a pleasant holiday.



CAMP TOILET.



HON. SECRETARY:
CLIVE E. LORD,
LAURAMONT, SANDY BAY.



11

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1912

To MARIA ISLAND

REPORT ON CAMP-OUT

By Clive E. Lord, Hon. Secretary.

GEOLOGICAL NOTES

By A. D. Mackay, B.Sc.

NOTES ON THE BIRD LIFE

By Robert Hall, C.M.Z.S.

Reprinted from "The Tasmanian Mail."

LIST OF CAMP MEMBERS

Mr. R. Atkinson.	Miss K. Packer.
Miss M. Bargh.	Mr. H. Park.
Miss N. Bargh.	Mr. A. Payne.
Miss O. Barnard.	Mr. J. G. Peacock.
Miss Brumby.	Mr. C. Plowman.
Mr. W. H. Clemes.	Mrs. J. Reid.
Mr. C. Chepmell.	Mrs. J. K. Reid.
Mr. Cuthbertson.	Miss M. Reid.
Miss D. Dean.	Mr. H. Rodd.
Mr. H. Dean.	Mr. L. Rodway.
Miss Elliott.	Mr. J. Searl.
Mr. E. A. Elliott.	Mr. J. Simson.
Mr. Fesenmeyer.	Mr. R. Stops.
Professor Flynn.	Mr. W. E. Taylor.
Mr. W. Golding.	Mrs. Taylor.
Mr. F. Grueber.	Miss J. Todd.
Mr. G. Ife.	Miss M. Todd.
Mr. R. Hall.	Mr. R. Todd.
Mr. E. Harrisson.	Mr. W. Todd.
Mr. E. P. Harrisson	Mr. Tuck.
Mr. J. Harrisson.	Mr. A. R. Tucker.
Mr. R. C. Harvey.	Miss Tucker.
Miss Hookey.	Mr. E. Tyndall.
Mr. J. Hurford.	Miss E. Vautin.
Mr. J. Laing.	Mr. A. C. Walch.
Mr. Laing.	Mr. J. Waleh.
Mr. A. Lewis.	Mr. B. Watchorn.
Mr. E. Lines.	Mr. C. Watson.
Mr. Alec Lord.	Mr. E. Williams.
Mr. C. E. Lord.	Mr. E. Woods.
Mr. A. D. Mackay.	Assistants.
Miss C. Marsh.	W. G. Cole.
Mr. W. L. May.	J. Harber.
Miss Ogilvie.	F. Walbourn.
Miss G. Ogilvie.	W. Woodward.



1. The Fishing Party leaving the Jetty at Darlington, Maria Island.
2. Breaking Camp.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1912.

DARLINGTON, MARIA ISLAND.

(By Clive E. Lord.)

Maria Island having been selected as the camp site for the eighth annual camp of the Tasmanian Field Naturalists' Club, 63 members were aboard the s.s. Mongana by 8 o'clock on Good Friday morning. Six more had already left in the s.y. Edina, kindly placed at the disposal of the club by Mr. W. Golding, which made the total party 69.

The club first visited Maria Island in 1908, when 27 members attended a camp held at Soldiers' Point. This year, having regard to the many buildings, etc., of historic interest, and also the famous fossil cliffs, it was decided to camp at Darlington, and Mr. G. E. Brettingham Moore kindly gave the club permission to camp on his property.

Good Friday turned out a perfect autumn day, and everyone enjoyed the trip to Dunalley, which was reached before 12 o'clock. Lunch was served as we were going through the Canal and Blackman's Bay, while soon afterwards Maria Island appeared in sight. After steaming across to Chinaman's Bay and landing some passengers, a course was shaped for Darlington, where the local residents, together with the crew of the Edina, welcomed us shortly after 3 p.m.

Darlington is situated at the N.W. corner of the island, and is the site of the old convict station and the base of the Bernacchi operations. Maria Island itself is situated several miles off the East Coast of Tasmania, and is rather mountainous. The lower portion is only connected with the northern part of the island by a low sandy neck, on the western side of which lies Chinaman's Bay, and on the other Riedle Bay. The chief mountains, which are situated in the northern half, are Mount Maria and The Bishop and Clerk; at the base of the latter the famous fossil cliffs are situated.

Historically, the island has an interesting record, being first discovered by Tasman in 1642. In 1802 an expedition, fitted out by the French Government, under the command of Captain Baudin, called at the island, and one of their

number, M. Monge, the surgeon, was buried near the shore, not far from Chinaman's Bay. Later, when Tasmania was settled as a British colony, Maria Island was chosen as one of the convict stations, and many of the buildings erected at that time are still standing, although a good number were demolished in Bernacchi's time. Among the most interesting of those remaining are the windmill, erected in 1840, and Smith O'Brien's cottage, where the famous Irish exile spent a good deal of his time during his enforced stay on the island. The majority of the buildings at present forming the settlement were erected during the Bernacchi era, and include a large hotel of 30 rooms, and many smaller houses, and also a row of 12 cottages, which are well-known as "The Twelve Apostles," while a large sum of money must have been spent in the erection of the cement works, which at the present time are almost reduced to ruins. But, apparently, money was not much of an object in those days, for £175 was spent in the erection of a pigeon loft, portion of which is still standing.

Midway between Maria Island and the mainland lies Lachlan Island, a rocky islet of some eight or nine acres in extent, in connection with which there is a well-known legend to the effect that it is named after a convict called McLachlan, who, with another prisoner, made his escape from the station at Long Point and swam to the island with leg-irons on. McLachlan died on the island from exhaustion, but his mate reached the mainland, only to be recaptured soon after. There are several different versions of this remarkable escape, but as far as authentic records go, none of them appear to be correct, as it seems to be more probable that the island was named after Governor Macquarie, whose Christian name was Lachlan. Scott is said to have referred to it as Lachlan Island in 1824, whereas the convict station on Maria Island was not founded until a year or so after that date.

But, to return to the present. As soon as the steamer was berthed at the jetty a start was made in getting all the camp impedimenta ashore, and loading it on the bullock waggons for conveyance to a site near the old cement works, this hav-

ing been chosen in preference to the position at the hopfields.

All hands were soon busily engaged in erecting tents, etc., and the country in the near vicinity of the cement kilns resembled a small township in the making, and perhaps there was more industry shown than the place has seen since the days of the Bernacchi era of the island's history. The cooks were especially fortunate, as Mr. F. Pitfield, who is manager of Mr. Moore's estate, very kindly allowed them to use the one-time manager's residence (of the cement works). This was a great benefit, especially when the rain came, for we were able to have all our meals under cover.

The first meal in camp was served under slight difficulties, owing to our late arrival, but on the next day things were put in proper order, and everything worked without a hitch.

Friday evening was a quiet one for all, as most of the party were rather tired after the events of the day, and soon re-fired to their tents, but the following morning the camp was astir early, and several parties went down to the beach for a swim in Neptune's element, while others preferred a fresh-water dip in the creek which flowed near the camp.

Soon after breakfast several parties were formed, in order to make excursions to places of interest, the main party being that which went dredging in the Mongana, which vessel went several miles to the eastward of Maria Island, and was ably handled by the genial skipper, Captain Kerr, thus enabling numerous hauls to be made at a depth of about 50 fathoms.

On Sunday nearly all the members boarded the Edina, while several were taken in tow in a large boat that had been taken up for the use of fishing parties, and a start was made for Chinaman's Bay. The weather was all that could be desired, and the journey was enjoyed by everyone. A landing was effected at the S.E. end of the bay, and after a short walk, Riedle Bay, which is situated on the eastern side of Maria Island, was reached, and a most perfect vista was unfolded. Many were the expressions of delight at the beautiful beach, with the great ocean rollers curling in upon the shore. After spending an enjoyable day, the return trip was commenced about 4 o'clock, and the party landed at Darlington once again, in good time for the evening meal. Although the day was a most perfect one, the crew of the launch expected a change before long, as the glass had been steadily dropping all day. Early on Monday morning the storm broke over the camp, a regular "southerner buster," and those under canvas had an exciting time for an hour or

so; but on the whole, the tents stood very well, only one coming down, and another was deserted by its inmates in favour of a room at the cottage. The Edina got knocked about a little in the bay, but her crew managed, after much hard work, to gain a more sheltered anchorage near the pigeon loft, and here the staunch little vessel remained during the remainder of the gale, although at times the seas were large enough to cause her to roll scuppers under. However, as the majority of the party were experienced campers, they did not mind the weather conditions, and during the morning several parties visited the fossil cliffs and other places of interest. In the afternoon a good number assembled in one of the old buildings at the cement works when a large fire was soon burning brightly, and the company present were entertained by phonograph selections (Mr. Adkins), and Mr. Hector McRae discoursed music with the aid of his historic bagpipes, which, by the way, were quite a feature of the camp, as during the evenings dances were held and Mr. McRae acted as orchestra, being relieved at times by selections on Mr. Golding's pathephone and Mr. Adkins's phonograph.

Several evenings "camp fires" were held, and the members sang songs, etc. On Sunday evening hymns were sung, while on another occasion Mr. Hall spoke about several species of birds, and other members recited. These camp fires, together with the impromptu dances, were very popular, and some very pleasant evenings were spent during the time we were under canvas.

On Tuesday morning early rising was the order of the day, and the tents were struck in good time, and all impedimenta ready for transport at the appointed time. The Mongana did not leave till 2.30 p.m., and owing to having to call at several ports and a shortage of coal we did not reach Dunalley till almost dark. Here a stay of over half an hour was made, in order to take in fuel and cargo. The remainder of the journey was without incident, town being reached at 12.29 a.m. During the journey many choruses were sung, and as the vessel reached the wharf everyone joined in singing the National Anthem.

GEOLOGICAL NOTES ON MARIA ISLAND.

(By A. D. Mackay, B.Sc.)

Maria Island is exceptionally interesting geologically. A fine series of rocks is exposed at the northern end of the island near the camp, and it is a matter for regret that the rough weather expe-



1. Hoisting the Dredge on Board.
2. A Scene near the Camp.



GROUP OF MEMBERS



ATTENDED THE CAMP.



1. Off for the Day.
2. The Cook and his Assistants.

rienced prevented more detailed observation by the members of the Tasmanian Field Naturalists' Club during their recent visit.

The oldest rocks observed were at Chinaman's Bay, at the south end of the isthmus joining the two portions of Maria Island. Here a dark-coloured quartzite is exposed not far from the granite. It has resulted from the metamorphism by the granite of some sandstone, which is older than the igneous rock, and is probably of either Silurian or Ordovician age. The unaltered sandstone is obscured by surface soil, and it is only near the contact that a clean section of the rock is visible, and as all distinguishing marks are there destroyed, identification is difficult.

The eastern part of the island is formed of a portion of that line of granite which extends down the eastern coast of Tasmania. As the camp was on the north-western corner of the island, this rock was not examined in detail, but it appears to be normally of a grey colour, pink or dark red in places. It is simple in structure, and consists essentially of dark biotite, an acid felspar, and quartz. In places it is coarse grained with felspar crystals two inches long. Near the contact with the sedimentaries it is finer, owing to the more rapid cooling, and assumes a porphyritic appearance with phenocrysts of felspar and quartz.

At the north end of the island a fine section is exposed at the Fossil Cliffs. These consist of permo-carboniferous limestone overlying glacial conglomerate of unknown thickness. This conglomerate consists of a matrix of limestone enclosing erratic blocks of various sizes and composition. Blocks of granite, quartzite, sandstone, slate, and other rocks are here gathered together, both small and large. These give the bed a power of resistance to erosion greater than that of the overlying limestones, and in consequence it projects forward several feet, although it is just above sea level, where the force of the sea is greatest. The nearest granite is some miles away; no river could possibly carry such boulders, which are, moreover, not water worn, but angular. Ice was the transporting agency.

The beds exposed in the cliff are divided by Mr. R. M. Johnston into the following series:—(v.) Crinoid zone; (iv.) productus zone; (iii.) fenestella zone; (ii.) pachydomus zone; (i.) erratic zone. Examination is considerably helped by the fact that large blocks of the upper series have been undermined, and fallen down to the conglomerate bed. The rock is so hard, however, that the collection of specimens is almost impossible, the fossils themselves breaking more readily than the enclosing matrix. (i.) This zone has been already described. (ii.) This zone forms the lower part of the cliff, and

so can be easily examined. It contains many pachydomus shells, some beds being almost entirely composed of them. (iii.) The fenestella zone consists of mudstones with specimens of fenestella and spirifera. (iv.) These beds have been quarried for cement making, and were readily reached by camp members. They consist of beds of limestone separated by calcareous shale and mudstone. Specimens were obtained of fenestella, spirifera productus and crinoids. Some fine specimens of crinoids were seen with wide branches, but it was impossible to remove them. The rock is not pure, as it contains quartz particles. It has evidently suffered from heat or compression, as it is highly crystalline. The fossils have thus been partly destroyed, but there are patches more siliceous than the rest, in which multitudinous small fossils can be seen closely. In places chalcedony has been formed from the more siliceous parts.

In addition to the quartz particles, a few water-worn nodules were observed in the rock of a dark green igneous rock, surrounded by an aureole of pyrites. These nodules were evidently deposited together with the enclosing matrix. From observation of hand specimens, they appear to be the ordinary diabase so common in Tasmania. The modern view of this rock, however, is that it is of upper mesozoic age, i.e., later than this rock. Mr. R. M. Johnston, in his "Geology of Tasmania," stated that two eruptive periods had existed, one of which was earlier than these beds. If the rock is really diabase, this view would be supported, but it is so decomposed that identification would be difficult, even with the aid of a microscope. Another view is that it might be gabbro of Devonian age. As yet, however, none has been observed on the East Coast. As the nodules are well water-worn and may have travelled some distance, this might be the more probable view, but the evidence does not warrant an opinion. The aureole of pyrites round the nodule is interesting, and may have been caused by sulphide waters permeating the limestone and precipitating pyrites on coming in contact with the iron salts of the igneous rock. (v.) The crinoid zone is composed of limestone, with plentiful crinoid remains. Overlying the limestone sandstone occurs. This may be either of upper permo-carboniferous age or of lower mesozoic, as sandstone beds occur in each. Some camp members reported that two separate series of sandstone occurred, in which case both eras might be represented. As the mesozoic strata rest conformably upon the permo-carboniferous only, detailed work could decide whether both are there or not. In either case there is a possibility of coal being found, though none was observed.

Intruded into this series of sedimentary

rocks are the usual laccoliths of diabase, so common in south-eastern Tasmania. As this rock was described in last year's report, detailed reference is unnecessary. It is of upper mesozoic age, of medium grain and basic composition. It forms the top of Mount Wellington, the Western Tiers, and many other mountains and hills. A good example is seen at Cape Bernier, which was passed on the way to Maria Island. Here the diabase intrusion can be seen very clearly.

After the diabase intrusion, the present era of denudation began with oscillations of land and sea. The latest movement has been a slight elevation, which has given rise to numerous raised beaches. A good example occurs at the isthmus joining north and south Maria Island.

The presence of the granite is an encouraging feature in searching for mineral deposits, which must occur, if at all, in the pre-Devonian rocks. The granite is very common in Tasmania, and is responsible for the mineral wealth of the island. So far as Maria Island is concerned, no mines have been discovered, though a couple of prospecting shafts remain from the Bernacchi era. The rock would form a good building stone, but can be worked better at other localities, notably near Scottsdale.

The limestone has already been worked for cement making and lime burning, and might yet be the mainstay of the island. However, the presence of quartz in the rock would reduce the grade of lime obtainable, though perhaps not to any great extent. The rock is very hard, and is well suited for a building store. It would probably form a good substitute for marble. Freestone quarries could also be opened up, though the difficulties of transport would be troublesome.

Maria Island is geologically similar to Schouten Island, where coal seams have been worked extensively, and the possibility of the occurrence of either the lower or upper coal measures should not be overlooked.

In the preliminary building for the cement works, many bricks were made. These do not seem to have been of very good quality, but it may be well that the clay used might by more modern methods produce good bricks, but whether they could compete against those made at New Town is questionable.

It is stated that the soil in the early days was exceptionally rich. It certainly looks very good near the settlement, and the splendid timber growing in the valleys would support the statement. Farming expenses would be high, however, as threshers and chaffcutters would have to remain on the island, and would not have full occupation. Vineyards were planted at one time, but the climate,

though noted for its mildness, was not warm enough for them. The annual rainfall is rather heavier than the neighbouring mainland, and is about twenty-six inches. The soil should be well suited for apples near Chinaman's Bay, and probably in other parts also. At present the timber industry would appear to be the main support of the population. The logs are certainly fine ones. So far as scenery is concerned, the island is well to the fore, and it is a matter for wonder that there are so few tourists.

It will be seen that the geological work of the party is incomplete, owing to the rough weather and short time available. The whole time spent in camp would be all too short to enable one to properly examine the Fossil Cliffs alone.

THE BIRDS OF MARIA ISLAND.

(By Robert Hall, C.M.Z.S.)

Maria Island, named in honour of Maria Van Diemen, is from one of the many Dutch names that would be better kept in their native pronunciation. In the original it is softer and more pleasing. The navigator and naturalist, Baudin, in 1802 ("Emu," vol. XI., pt. 4, 1912), visited this charming portion of Tasmania, and left in Paris a mention of the birds in which we, a century later, find a similar interest. In his day the duty of explorers was to make the first record of species; in ours it is to correlate and get life histories. The facts come slowly by reason of the few workers.

Baudin wrote of that graceful bird, the Australian black swan, and Sula, the Solan goose, so-called, but now the gannet or booby, the most southern of its family.

Baudin, as a maritime explorer, was always keen upon what would suit his crew as food, and the swan was finest of all. "The cormorant and the albatross (captured off Maria), although less good, are not for that reason to be disdained."

He speaks of the "Goueland gris"! Does any reader know which bird is intended?

The list of birds observed on the field naturalists' trip is a fairly full one. It is representative of the Tasmanian air fauna. But where were the waders? Evidently they had left the island beaches while those of the migratory section had gone north on their way to the Siberian nesting ground in the tundra. Many are, at the present time, spending some days in Corea, changing the winter plumage—the plumage of our summer.

The spine-tail swift, seen about two weeks before the camp, is journeying towards Manchuria. Either there or in



1. Bringing the Luggage back to the Darlington Jetty.
2. Local Residents Hauling Logs at Darlington.

Japan it will nest, just as the cherry blossom is losing its pink petal. Mr. C. Belcher, in Donald Macdonald's "Nature Notes," asks if any observation later than March 10 of this year has been made in Victoria. Here is one in higher latitude.

The voice of the cuckoo we missed. No longer this autumn will its semi-tones be heard, simply because it is quickly passing across the Straits into the Bassian sub-region of Australia. It would be interesting to know just how far it ascends into low latitudes, and if North Queensland is one terminus of its annual migration. Another question arises! Are the Bassian and Torressian areas the migratory course of *Cuculus inornatus* of Tasmania? A great quantity of Australian data on the migration of its birds is needed. As this forth-comes, so will a knowledge of their economic value. A knowledge of their routes would be valuable, just as trade routes; but, as with wireless telegraphy, we need to be tuned to their travelling calls; to have the seeing eye, and the analyst's hand, before we come into possession of facts in relation to food.

Away flew a cuckoo shrike (*Graucalus parvirostris*), a strictly Tasmanian sub-species, because of its smaller bill. We found it still in its nesting ground. Here, again, our knowledge of distribution is much too limited. In Victoria the species journeys north into Queensland every autumn. What does the Tasmanian sub-species do? Does it fall in with the rule that the further north birds migrate, the further south they travel on their return in the spring? This would bring back the flocks of our small billed sub-species, and them alone. How very necessary to Tasmania is this unwritten law of the insectivorous birds.

The geological map of Mr. R. M. Johnston shows the eastern half of the island to be granitic. It is here we expected to see the spotted ground thrush, and we did find it. It rose with its quail-like burr.

About the centre of the island, and immediately north of Oyster Bay (Chinaman's Bay), is situated a swamp that offers cover and food for certain water birds. I was unable to examine this depression, but a well-informed resident (Mr. McCulloch) tells me he often sees the black-backed coot (*Porphyrion melanotus*), now considered by Mr. Gregory Mathews as a sub-species *P. m. fletcheri*, in honour of a Tasmanian lady.

The various watercourses, though short, were indicated by the dusky fantail and little tit to be permanent.

Upon Mr. Bretingham-Moore's property at Darlington that useful bird, the

yellow-tailed tit, was doing duty in a flock. This species always gives the country an atmosphere of civilisation.

So does the imported starling. We saw a flock. At this end of the island its mission is for good, as it helps the grass outgrow its enemy the insect. It is here that sheep benefit.

We saw magpies of two kinds, robins of three kinds, ducks of four kinds, and honey-eaters of six kinds.

There were quite large flocks of the parrot peculiar to Tasmania (*Platycercus browni*), and we heard of a black cockatoo.

In the early hours of the night the call of boo-book passed over the camp; the spotted owl was calling to its mate.

There were a few species of sea birds to be seen. Close by the wonderland of fossil beds in the north-east sailed the majestic sea eagle. At this time the land form, our largest eagle, was spirally soaring along Mount Maria.

Still nearer to these fossil beds we saw the Pacific gull and its cousin, the silver gull. Upon the beach was a solitary pied oyster-eatcher, while further down the sand beach was a sooty oyster-eatcher.

Standing on a broken ledge of fene-stella was a pied cormorant. The second species was observed in Chinaman's Bay.

Altogether 59 species are now recorded as found in the island. With the exception of those marked *, they were identified by the writer. Those marked * were identified by Mr. Elliott and Mr. McCulloch. Mr. E. A. Elliott observed the firetail and the white fronted heron.

The list is as follows:—

Short-tailed petrel (*Puffinus tenuirostris*), white-capped albatross (*Thalassogeron cautus*), sooty albatross (*Phœbetria fuliginosa*), Pacific gull (*Gabianus pacificus*), silver gull (*Larus novaehollandiæ*), crested tern (*Sterna bergii*), white-breasted cormorant (*Phalacrocorax gouldii*), pied cormorant (*P. hypoleucus*), gannet (*Sula serrator*), fairy penguin (*Eudyptula undina*), black swan (*Chenopsis atrata*), black duck (*Anas superciliosa*), *shoveller (*Spatula rhynchos*), *blue-billed duck (*Erisomatura australis*), *musk duck (*Biziura lobata*), white-breasted oyster-eatcher (*Hæmatopus longirostris*), sooty oyster-eatcher (*H. fuliginosus*), white-fronted heron (*Noto-phoyx novaehollandiæ*), *baldecot (*Porphyrion melanotus*), spur-winged plover (*Lobivanellus lobatus*), wedge-tailed eagle (*Uroaetus audax*), white-bellied sea eagle (*Halietus leucogaster*), harrier (*Circus sp?*), spotted owl (*Ninox maculata*), raven (*Corone australis*), hill crow-shrike (*Stre-*

pera arguta), small-billed cuckoo-shrike (*Coracina parvirostris*), scarlet-breasted robin (*Petroica leggei*), flame-breasted robin (*P. phoenicea*), dusky robin (*P. vittata*), Gould's blue wren (*Malurus cyaneus*), dusky fantail (*Rhipidura diemenensis*), brown-rumped tit (*Acanthiza diemensis*), yellow-rumped tit (*A. chrysorrhoa*), spotted babbling thrush (*Cinclosoma punctatum*), lesser white-backed magpie (*Gymnorhina hyperleuca*), grey butcher-bird (*Cracticus cinereus*), grey-tailed whistler (*Pachycephala glauca*), spine-billed honey-eater (*Acanthorhynchus dubius*), strong-billed honey-eater (*Melithreptus validirostris*), black-headed honey-eater (*M. affinis*); crescent

honey-eater (*Meliornis diemenensis*), New Holland honey-eater (*M. novae-hollandiae*), yellow wattle-bird (*Acanthochæra paradoxa*), yellow-throated honey-eater (*Ptilotis flavigularis*), white-eye (*Zosterops coerulescens*), yellow-tipped pardalote (*Paralotus affinis*), pipit *Anthus australis*), *fire-tailed finch (*Zonæginthus bellus*), *spine-tailed swift (*Chætura caudacuta*), *azure kingfisher (*Aleyone azurea*), *pallid cuckoo (*Cuculus inornatus*), black cockatoo (*Calyptorhynchus funereus*), yellow-billed parakeet (*Platycercus browni*), bionzewing pigeon (*Phaps chalcoptera*), brown quail (*Synœcetes australis*), painted quail (*Turnix varia*), starling (*Sturnus vulgaris*).







Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1913

To SAFETY COVE, PORT ARTHUR

TASMANIA

GENERAL REPORT

By Clive E. Lord, Hon. Secretary.

BOTANICAL NOTES

By L. RODWAY, Government Botanist.

DREDGING OPERATIONS

By C. T. Harrisson, Member Mawson Antarctic Expedition.

GEOLOGICAL NOTES

By A. N. Lewis.

Reprinted from "The Tasmanian Mail."

LIST OF CAMP MEMBERS

Mr. C. Abey	Mr. W. L. May
Mr. G. Archer	Mr. C. F. Mason
Miss Bargh	Mr. R. McAlister
Miss O. Barnard	Miss Miller
Miss Bealey	Miss Murphy
Mr. R. A. Black	Mr. R. Packer
Miss Brumby	Miss K. Packer
Mr. H. Burdon	Miss Parkin
Mr. A. L. Butler	Mr. A. Payne
Mr. J. Cuthbertson	Miss Pocock
Miss G. Cottier	Mr. L. Rodway
Mrs. Darling	Miss W. Ross
Mr. R. Dawson	Mr. B. Scarr
Miss D. Dean	Mr. J. Searl
Mr. H. Dean	Miss O. Shoobridge
Mr. Denny	Mr. J. Simson
Mrs. Ellis	Mr. R. Stops
Miss V. Ellis	Mr. W. E. Taylor
Mr. L. Fesenmeyer	Mrs. W. E. Taylor
Mr. G. Fitzgerald	Miss M. Todd
Professor T. T. Flynn	Miss J. Todd
Miss K. Giblin	Mr. R. Todd
Mr. F. Greuber	Mr. W. Todd
Miss Gulline	Mr. F. G. Tuck
Mr. G. H. Hardy	Miss Tuck
Mr. C. T. Harrisson	Mr. J. Tuck
Mrs. C. T. Harrisson	Mr. W. Vaughan
Mr. E. D. Harrisson	Mrs. Vaughan
Mr. E. P. Harrisson	Mr. C. Watson
Mr. J. Harrisson	Mr. W. Weymouth
Mr. R. Harvey	Miss J. Walker
Mr. E. Heritage	Mr. B. Watchorn
Mr. J. Henry	Mr. G. Wilson
Mrs. Henry	Miss J. Wise
Miss Hookey	Miss M. Wise
Mr. J. T. Hurford	Mr. C. Wolphagen
Miss M. Kirby	Assistants:
Mr. A. N. Lewis	W. G. Cole
Mr. H. Lewis	P. Dobbs
Mr. C. E. Lord	S. Gibbon
	W. W. Woodward.



Approaching the Jetty at Port Arthur.



Landing from the S.S. Koomeela at Safety Cove.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1913

(By CLIVE E. LORD, Hon. Secretary)

The annual Easter camp of the Tasmanian Field Naturalists' Club was held this year at Safety Cove, Port Arthur. The development of this annual institution is shown by the following list, showing the locality of and the number of members who have attended the various camps held since their inception in 1905—

- 1905.—Bream Creek; camping party, 9.
- 1906.—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907.—South Bruni; camping party, 27.
- 1908.—Maria Island (Soldier's Point); camping party, 27.
- 1909.—Wineglass Bay (Freycinet Peninsula), camping party, 84.
- 1910.—Cole's Bay; camping party, 97.
- 1911.—Southport; camping party, 60.
- 1912.—Maria Island (Darlington); camping party, 69.
- 1913.—Safety Cove, Port Arthur; camping party, 80.

This year new ground was broken by choosing Safety Cove, on Tasmania's Peninsula, as the scene of the camp. Safety Cove is picturesquely situated on the western shore of Port Arthur, and about three miles from the old convict settlement. To the southward of the camp site is Brown Mountain, and it is in the basaltic cliffs that line the coast in the near vicinity that the Blow Hole and the famous Remarkable Cave are situated. At the northern end of the cove the rocky shores of Point Puer jut out far into the sea. It was here that the boy convicts were condemned to spend many weary years. Sometimes over 800 convicts, whose ages did not exceed 18 years, were imprisoned on the point, but as this portion of the convict establishment was not used after 1857 there is very little to be seen of the spacious buildings which were once erected here. Just to the north-east of Point Puer lies the far-famed Dead Island, the final resting place of hundreds of weary exiles, as well as a few free

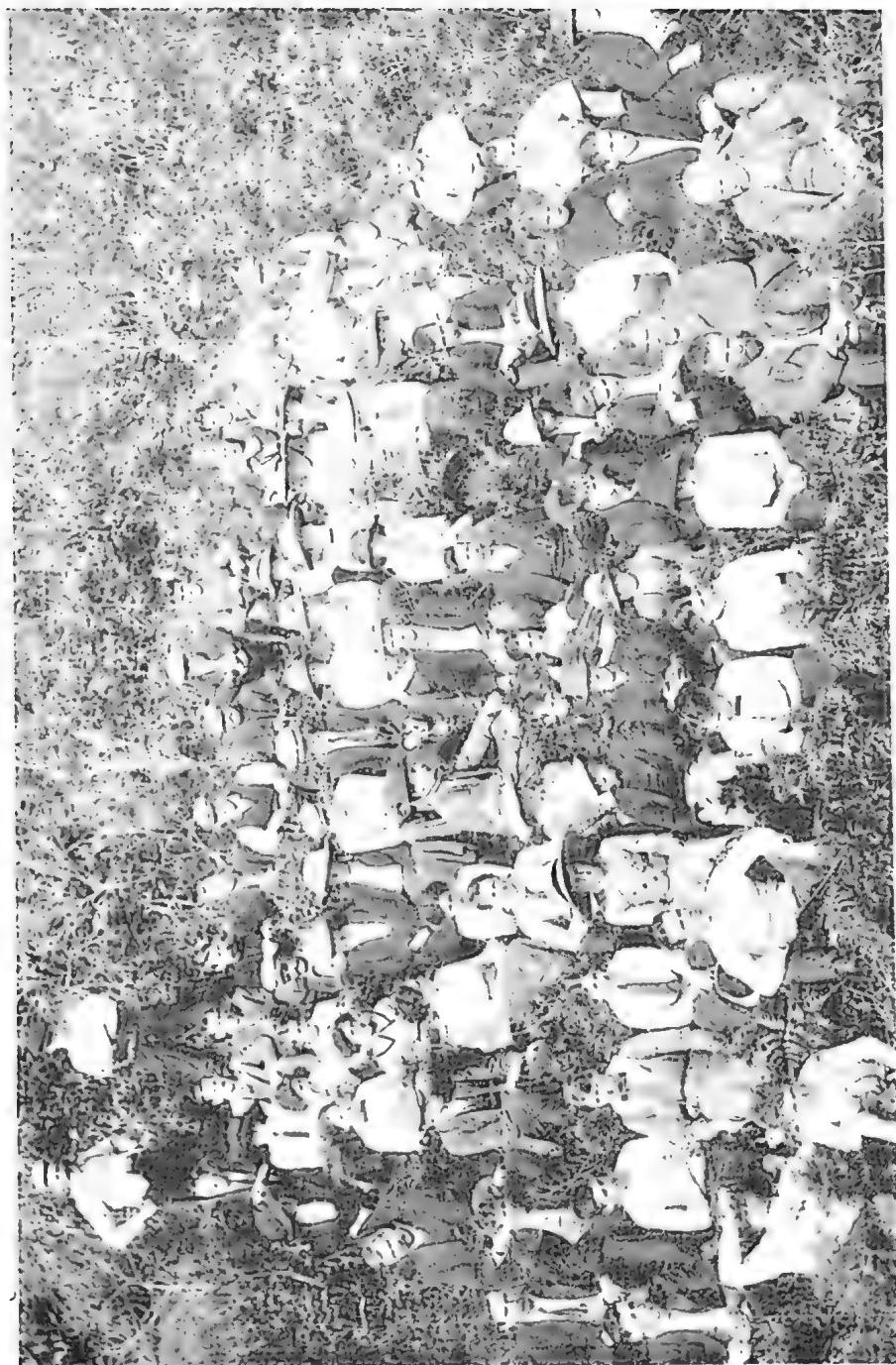
citizens of the colony. The main convict station was situated at less than a mile due east from Dead Island, on the shores of Opossum Bay, and is, historically speaking, one of the most interesting places in Tasmania. It was first picked out as a station in 1830 by Governor Arthur, who sent Dr. Russell with a body of convicts and militia to form the nucleus of the future establishment which grew to such large dimensions about ten years later under the rule of the famous Dr. J. O'Hara Booth, who at one time had over 7,000 convicts under his charge, on the Peninsula. The convicts were employed in building, farming, making roads, etc., as well as in the large workshops which were manned by convicts, and supplied the wants of the numerous inhabitants.

Thursday evening at midnight, found 80 members aboard the s.s. Koomeela, and a start made for Safety Cove, Port Arthur, which was reached about daylight, and an advance party was landed immediately, and met by Mr. R. M. Tanner, who had kindly given the club permission to camp on his estate during our stay. The camp was pegged out, and a start made to bring all the camp impedimenta ashore, which was accomplished after numerous trips in the smaller boats that had been taken down for the use of fishing parties, etc. The tents began to spring up like mushrooms, and within the space of a couple of hours the township of canvas had sprung into existence. Meanwhile the assistants had been busy, and a very acceptable breakfast was partaken of. During the forenoon most members spent the time in putting their tents in order.

After lunch a large party visited the Blow Hole and the Remarkable Cave, which were situated not far from camp. After leaving the camp a short walk through the scrub brought us to the regular tourist road which leads to the cliffs, and passes, en route, the old Government farm, which, in the time of convict labour, must have been a very large establishment. At the present time only portion of the old build-



Dinner-time in Camp.



Group of Members who attended the Camp.

ings are occupied. The remainder are either on the verge of ruin or have been pulled down as dangerous. After leaving the farm the road leads on to the cave (a short side track leading to the Blow Hole), which is reached by steps cut in the face of the cliffs for a certain distance, while for the final few feet of the descent a wooden ladder is provided. The Remarkable Cave is well worth visiting, and the artists of the party were soon busy both with brush and camera, in order to bring back with them a memento of their visit, in the shape of views of this little known yet wonderful cave. The steps down the face of the cliff lead to a large bowl-shaped opening, and from here the cave opens by two separate passages direct to the ocean, so it will be seen that it is practically a blowhole on a very large scale. At the time of our visit the tide was very low, thus enabling one to walk right through to the ocean beach.

The first evening in camp was a quiet one for all, as after the events of the day and preceding night bed was sought early. But the following morning the camp was astir by 7 o'clock, and a large number of members were to be seen disporting themselves in the placid waters of the bay, while others preferred a surf bathe on the outer beach. After breakfast members boarded the Koomeela and proceeded to Carnarvon, where a large party was landed, and proceeded to explore the settlement and surrounding district, while a small but very enthusiastic party proceeded outside to the open ocean to see what treasure, in the shape of scientific specimens, could be dredged from the ocean's bed. The steamer went several miles out to sea south of Tasman Island, and was ably handled by the genial skipper, Capt. Holyman, thus enabling numerous hauls to be made. Unfortunately, owing to the sea that was running, the large dredge was lost, together with many fathoms of wire rope, and future operations had to be carried on with the small dredges only. As a separate report is to be issued upon the dredging, there is no need for further mention here.

On Sunday the weather, which up to the present had been perfect, took a change for the worse, but this did not prevent parties being arranged to visit such places that were of interest to them, such as the fern gullies in the hills at the rear of the camp, Point Puer, etc., while in the evening a large camp fire was held on the beach, around which nearly the whole camp congregated.

The Koomeela was again called into service on Monday, and the day spent in cruising round the bay and visiting such portions of the shores that seemed worthy of examination, while the dredge

was several times brought into commission to bring to the surface specimens from the depths of the bay. Other excursions were made to Mt. Arthur, Oakwood, and the fern gullies in the near vicinity.

The evenings in camp were usually spent in enjoyable socials, which were held round a large camp fire on the beach. Songs were sung, while several members proved their worth in the way of reciting. On one occasion Mr. C. T. Harrison told the members how he spent last Easter in the icy regions of Antarctica, and another evening Captain Kerr brought down the house by singing several witty sea songs, or rather parodies of the same. These impromptu concerts were very popular during the time we were under canvas, and caused the evenings to pass very pleasantly.

But all good things must come to an end, and soon after breakfast on Tuesday morning a start was made to break up the camp. There were many regrets expressed as the tents were lowered down and folded up, and then carried off to the beach, where a very miscellaneous collection of luggage began to accumulate. However, the bears were soon busily engaged in transporting the camp impedimenta aboard the steamer, and by a quarter to 1 the last load had been taken off, the anchor weighed, and the bows of the good ship Koomeela turned in the direction of Hobart. A final flutter of handkerchiefs to the three local residents, who had come to bid us farewell, and then Safety Cove passed from our view; but it is to be hoped not for very long.

The homeward trip proved an enjoyable voyage, as, with the exception of a slight roll as we rounded Cape Raoul, the motion of the boat was scarcely noticeable.

Taking the trip on the whole, it was a very enjoyable outing. The weather for the first portion of the camp was of the best, but the latter part of the trip was rather unsettled. However, speaking generally of the whole outing, it was most pleasant, and things worked together for the enjoyment of all.

BOTANICAL NOTES.

(By Mr. L. Rodway.)

The flowering plants growing at Safety Cove did not form any marked contrast to those growing in the neighbourhood of Hobart, yet there were some interesting forms that well repaid the botanist. The dagger-fruited Hakea (*Hakea pugioniformis*) was present in abundance. Its short, stiff, sharp leaves constantly arrested the attention of those who endeavoured to walk through it. This was

generally dispersed over the heathy country. The Eucalypts were stringy bark, white gum, blue gum, and a broad-leaved peppermint, which in Hooker's work is treated as a distinct species (*Eucalyptus nitida*).

At the foot of Brown Mountain Mr. Harrison gathered two forms of unusual interest, one a stunted variety of blue gum, with short broad leaves and small flowers growing in threes, which resembled the heart-leaved gum rather closely in appearance. But the stalked leaves and its fruit could only place it with *Eucalyptus globulus* or cause it to be marked as a new species. In South-Eastern Victoria the common form of *Eucalyptus globulus* approximates to this, yet, till further information should alter our judgment, we may well term this form variety *Harrisoni*, and as such I hope to record it in the transactions of the Royal Society. The other gum was a peppermint, and appeared identical with the small fruiting *Eucalyptus coricifera* common on the Western Tiers.

A large white-flowered everlasting (*Helichrysum bracteatum*, var. *albidum*) was abundant. It forms an excellent garden plant, and seed was gathered for that purpose. Carnivorous plants were much in evidence; they belonged to two families, the butterworts and the sundews. Of the former, the very pretty butterfly plant (*Utricularia dichotoma*) was in full flower, while the smaller species (*U. lateriflora*) was everywhere in the boggy land. Of the sundews there were the forked sundew (*Drosera binata*), the bright red spathulate sundew (*D. spathulata*), and the pretty little dwarf sundew (*D. pygmaea*), whose whole structure, flower and all, could have been hidden by a sixpenny piece.

The autumn *Eriochilus* and the Duck were the only orchids in flower. The little wiry parasite, *Cassytha glabella*, was everywhere, preying with charming indifference on whatever plants it found near. Eyebright (*Euphrasia Brownii*) was one of the few plants in flower. Pretty berries were not numerous, but towards the summit of Mount Arthur there was a gorgeous display of coffee berry (*Coprosma hirtella*), of all shades, from pale scarlet to black. This plant is often also called native holly, which is a pity, for it is neither like nor any relation to a holly, whereas, on the other hand, it is closely related to the true coffee plant. The two seeds in the fruit are formed like miniature coffee beans, and, if some enterprising naturalist will only gather sufficient of them, roast, grind, make coffee, and drink it, it will be of some interest to record the result.

Port Arthur as a whole, especially the fern gullies, would afford interesting hunting for the lower forms of plant life, but the available time at the camp was all too short, and little was done towards collecting these groups.

DREDGING RESULTS.

(By Mr. C. T. Harrison.)

Amongst those interested, the dredging during the Easter trip of the Field Naturalists' Club is always looked forward to with the keenest interest, for it is from the little-worked fields of ocean around our coast that we expect each year to get our rarest and most interesting specimens—to yield us something new. Above, in the sunlight, the little steamer will be riding buoyantly over waves that sweep foam-topped under the fresh north-easterly breeze, the sea birds sailing around, and all is light and motion. Below, the dredge is groping blindly in the dim twilight of the still depths, in the oozy debris of broken polyzoa and old sea shells, scraping a little here, a few feet of the sea floor there, yet each short drag adding to our knowledge of the abundant life of the Great Deep. And the means of the Tasmanian Field Naturalists enables them to deal only with the very fringe of this submarine world; but even in such comparatively shallow depths, less than 100 fathoms, a few short drags yields so many species of its different forms of life, hitherto unknown, or unrecorded from Tasmanian waters, that we realise something of the work still to be done, of the multitudinous life abounding, the number and variety of the unknown forms that must be still hidden there; and of the interesting questions of range and distribution. And fascinating work it is, prying into, investigating, classifying, the wonderful, the beautiful, or the often grotesque inhabitants of the deeper seas.

Although the dredging this year was somewhat disappointing, yet the small amount of stuff snatched with difficulty from a depth of about 450 feet, is yielding, as usual, new and unrecorded species in the different hauls presented—speaking to us of what might be done if means only allowed of less haphazard, more systematic work being carried out.

On March 22, after taking a large party from Safety Cove to the port, the *Koomeela* steamed out of Port Arthur, south, with the dredging party on board. The first trial was made about two miles from the entrance, in about 50 fathoms, but the dredge came up empty after both drags. The *Koomeela* then steamed out

until the bearings of Tasman Island and Cape Raoul showed the vessel was seven miles off shore; the depth then about 70 fathoms. The work here was carried out under difficulty, with a strong breeze from the north-east, and considerable sea running. The steamer was rolling gunwale in, water occasionally over the deck, and the heavy derrick, from which the dredge was worked, swinging violently with the rolling of the vessel. Only a small amount of stuff was brought up in the few drags, and, probably with a heavy load in, the line parted in a heavy roll, and the large dredge from the University, with over 80 fathoms of rope, was lost.

On March 24, in taking parties to the Port and to Oakwood, three drags were tried—one near the Settlement, one nearer the Isle of the Dead, and the third in a deep hole beyond the isle. Thick brown mud was brought up each time, with a few interesting varieties of shells, crustacean, cake urchins, etc.

Amongst the molluscs from the fragmentary polyzooic sand and old shells brought up from 70 fathoms, Mr. May has shown me the hollow horn-like *Dentalium virgula*, with small embryonic shells, from which they apparently grow, still showing at the smaller end. Unrecorded from Tasmania. Two or three pair of *Caidita rosulenta*, a fine species of cockle; to the uninitiated very like *Trigontias* in appearance; large massive shells. A *Cuspidaria*, a white cockle shell, about half an inch across, the length doubled by the one end of the valves, narrowing out in a hollow tube. Mr. May pointed out that this agrees closely with a species dredged by the Challenger in 1,000 fathoms off the Azores. As it is scarcely likely to be the same, it is probably a new species. A triangular-shaped shell of about the same size could not be placed at all. Unfortunately, only an old worn valve, and a fragment of a larger one found, so is practically useless. Already a considerable number of smaller shells, members of the large family of Marginellas, etc., have been picked out, and more new or rare varieties may be found amongst these smaller species.

Almost every crab from the 70 fathoms is either new, or not taken on our previous trips. A handsome white crab, bristling with points or tubercles, was a welcomed prize, for a badly-damaged specimen was taken at about the same depth off Schouten Island, Easter, 1910, and pronounced "new" at the Australian Museum, Sydney. A fine pair of the family Maiidæ, or "spider crabs," bearing long stout points on their carapace, resembles one taken on the same occasion, and supposed to be a new

species of "Pugettia," but as that crab is now in Sydney awaiting description and name, they cannot be compared. But a still more "spider-like" crab is a fine Homolidae, apparently of the genus Latreillia, with a pointed triangular body of about half an inch long, and spindle legs of four times that length. The long thin eye-stalks, carrying large eyes, are half as long as the body. Have never taken any of this family before. Another crab not dredged before—rough odd-shaped, with a couple of feeble legs turned up or to the back, as if to carry a mantle or protective covering, as do the Diomidae. From the mud in Port Arthur a couple of Callianassidæ tiny lobster-like creatures, with almost transparent covering, and one largely developed front claw.

In Professor T. Thompson Flynn's specimen jars all the lower forms of life found a resting place. And although, from the small amount of stuff brought up, the "take" is more limited than usual, still there are curious and interesting creatures amongst it. Tubicolous worms in slightly curving, horny, quill-like cases, four inches in length; some specimens of the beautiful fan-shaped "cup-coral" (*Flabellum*), only found in the deeper water. Varieties of the starfish family; handsome Asteroids, very different from the species usually found in shallow water; the largest a fine five-rayed star nearly six inches across; Ophiuroids, with long writhing arms; Ascidiants, sponges, etc.

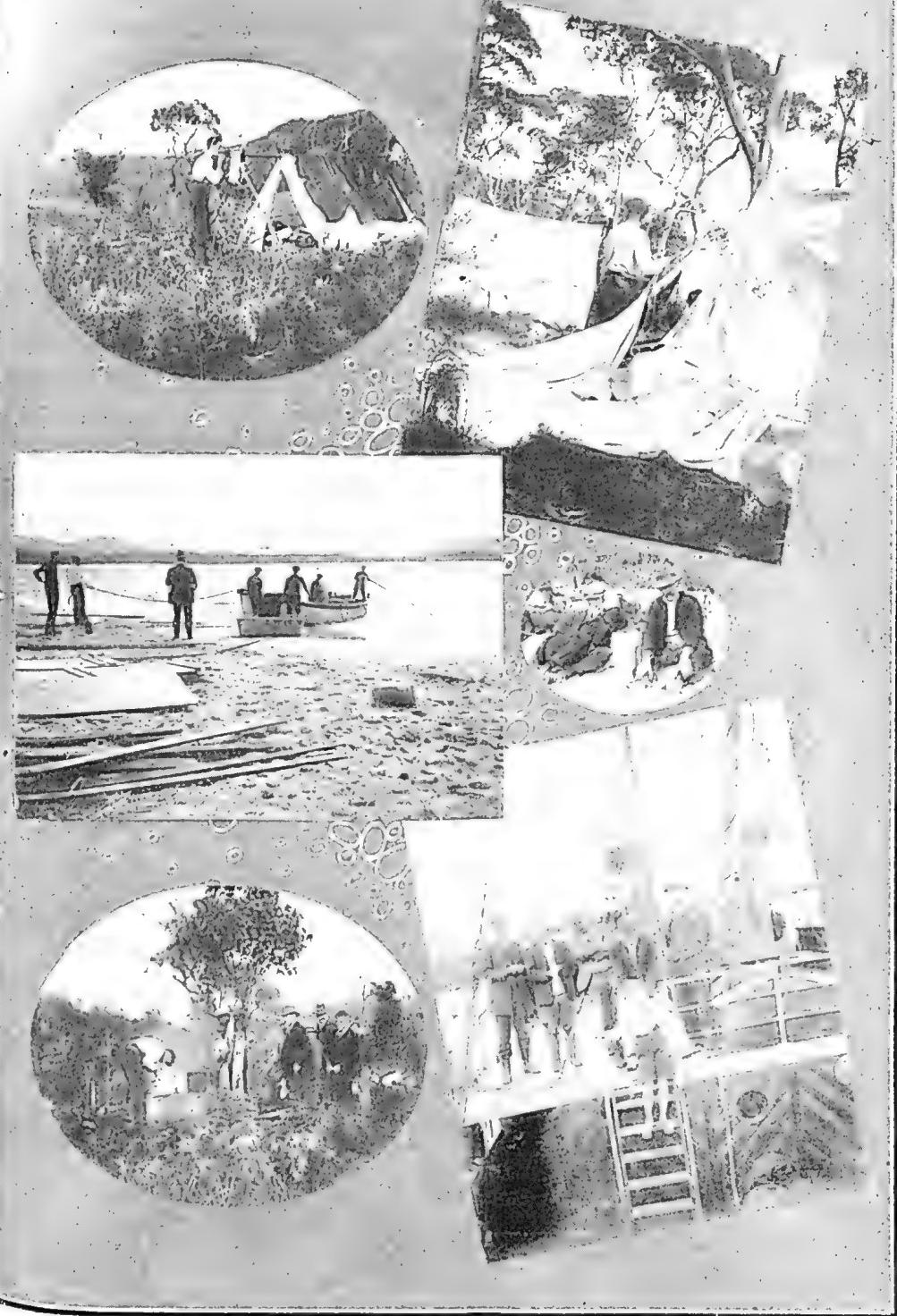
These curious and complicated forms are not so readily dealt with as the higher animals, molluscs, crustacea, etc., and have yet to be sorted and classified; so the Professor can say very little about them yet. But it is almost certain that some of them will prove new species.

GEOLOGICAL NOTES ON PORT ARTHUR DISTRICT.

(By A. N. Lewis.)

Safety Cove, Port Arthur, is not one of our many places of great geological interest, but the results of the camp in this line were by no means unsatisfactory, because, although nothing absolutely new was discovered, at least one very interesting formation, described fully below, was found.

The oldest rocks in the vicinity of the camp were the cliffs at Point Puer. They are composed of almost perfectly horizontal layers of permno-carboniferous lime-



Incidents connected with the Annual Outing of the Club at Safety Cove.



A Boating Party at Safety Cove.

stones and mudstones, interstratified with layers of slatey-coloured marine mudstones. The beds stretch inland for some distance, probably underlying the sandstones of the hills behind. They are also continued past Carnarvon for some distance. The following is a rough estimate of the various layers at the highest part of the cliffs:—Barren, yellowish mudstones about 20ft., mud-limestones and pure limestones containing all typical fossils of this horizon about 40ft., greyish barren mudstones about 20ft., limestones about 10ft., another layer of the greyish mudstones 4ft., basal mudstones of unknown depth. These beds have a slight tilt to the northward, and to Dead Island and the surrounding shore-line, as well as those beds to the north of Carnarvon are all of the upper layer, while the end of the cliffs near Safety Cove are of the bottom layers, all the rest having been worn away. The fossils to be found in the mudstones are the usual ones found in this system. There are some very good specimens of the productus to be found, and there is a marked absence of all larger shells, such as the *Spirifera convoluta*, the *Aviculopecten*, and the *Eurydesmas*.

The hills at the back of Safety Cove and around the coves are composed of yellow or red mesozoic sandstones, entirely barren of fossils. There are some sandstones of the same period at the head of Long Bay, in which traces of *Phyllotheca* and *Zeugophyllites* were observed. These evidently merge into the coal measures further north.

The whole of the mountains on the eastern side of Port Arthur are formed of diabase. They have been formed with Cape Pillar and Cape Raoul as a sill of diabase, which has welled up further to the north, filled some fissure in the overlying strata, but never reached the surface, and forced its way between the layers of older strata which overlay it for thousands of feet above the present summits of the mountains. The flatness of Cape Raoul and Tasmania Island is caused by the moulding of the molten diabase by the overlying strata. The softer rock which was above them once has been worn away, but the hard, igneous rock has resisted erosion and preserved the original flat, sill-like structure it assumed in forming. The columnar structure has been formed at the edge of the sill, where the diabase stopped either through impediment or

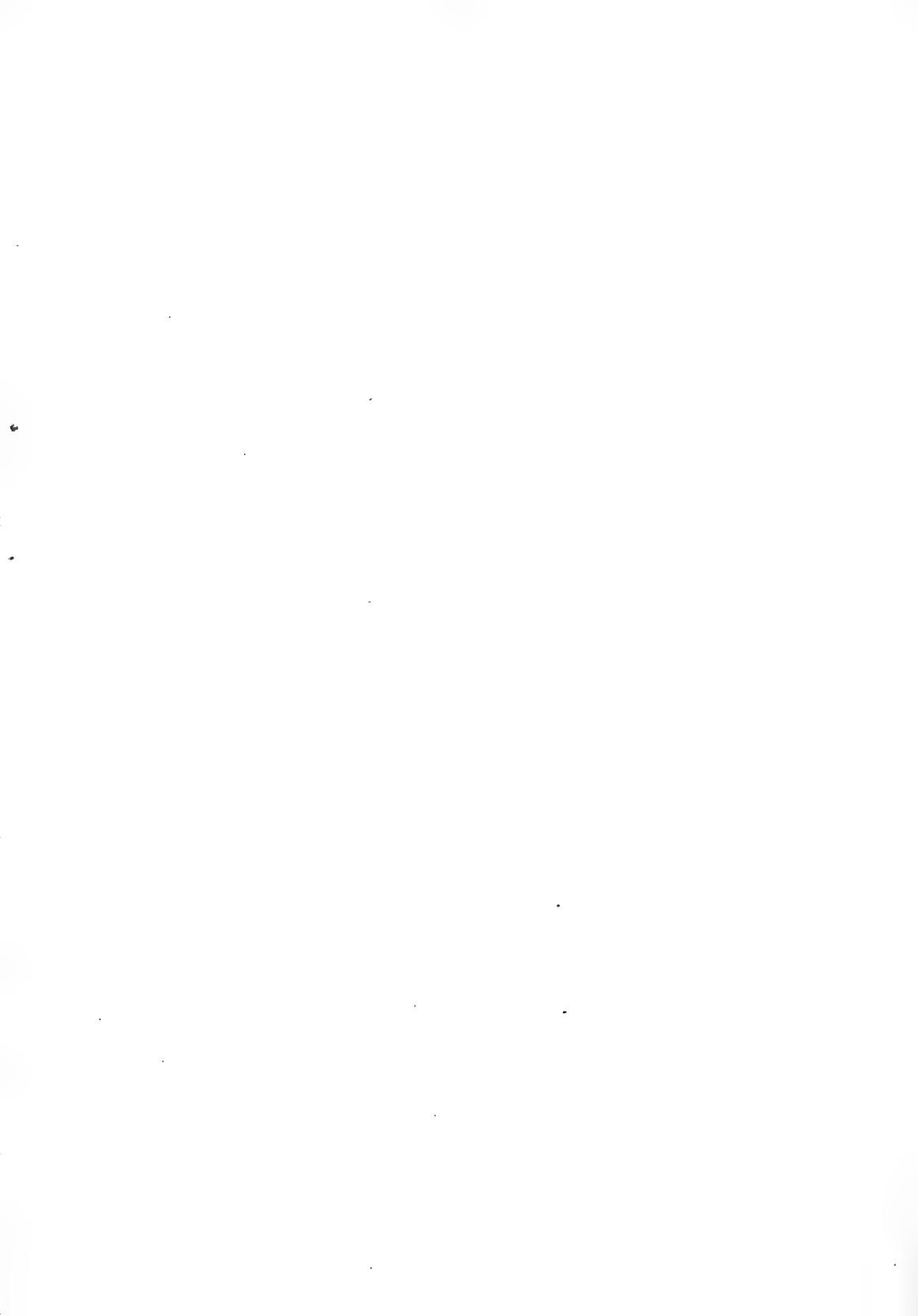
through coming out of the edge of the sandstone. A few patches of this older sandstone are to be seen, one near Cape Pillar and others towards the western end of the sill near Wedge Bay. Cape Raoul, Cape Pillar, Arthur's Peak, Brown Mountain the top of Mount Arthur are formed in this way, and are diabase, not basalt, as they are sometimes called.

Now, when this diabase was forced through the sandstone strata at a temperature of about 3,000deg. Fahr., it produced remarkable changes on the sandstones with which it came in contact, and this metamorphic rock was by far the most interesting formation found.

The place where it is best seen is between the Blowhole and the Caves, where the diabase of Brown Mountain meets the sandstones. In one place the following structure can be clearly seen. There is a small cliff of sandstones, with conglomerates on the top, underneath which can be seen the first effects of the enormous heating from below. For a foot or so the change is hardly noticeable, and is confined to a hardening of the rock, but after that it changes with increasing rapidity. Soon the rock becomes a dull brown, and very much harder, and large specks of mica appear. Very soon the rock is so hard as to be unaffected by a hammer blow, but still preserves its stratified form. Up through cracks has welled thin sheets of diabase as miniature dykes, telling of the sill not far below. Great masses of entirely changed matter are seen mixed up with the other rock, which soon loses all resemblance to any stratified rock, and becomes purely a mass of quartzite. The whole rock has now been changed in colour. Some of it is a pale green, some blue, other parts are a shining black; some again are like polished marble, and all of it is much harder than the ordinary diabase, which comes just below it.

This is continued with great variety all along the southern coast between Brown Mountain and Cape Raoul, and is a sight worth the trip to see.

The absence of native shell mounds along the whole shores of Port Arthur is particularly noticeable. The reason is probably that there are few shell beds near containing the shellfish eaten by the natives. There is one large bed at Long Bay, and a few flints were found at other places.





11

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1914

To Wineglass Bay, Freycinet Peninsula
TASMANIA

GENERAL REPORT

By Clive E. Lord, Hon. Secretary.

DREDGING OPERATIONS

By Charles Hedley, Assistant Curator, Australian Museum, Sydney.

ENTOMOLOGICAL NOTES

By G. H. Hardy, Assistant Curator, Hobart Museum.

GEOLOGICAL NOTES

By W. H. Clemes.

Reprinted from "The Tasmanian Mail."

SCHOUTEN PASSAGE AND FREYCINET PENINSULA.



Tasmanian Field Naturalists' Club

NINTH ANNUAL REPORT

HOBART,

September, 1914.

The Committee have much pleasure in presenting the Ninth Annual Report of the Tasmanian Field Naturalists' Club, as follows :—

During the past year the general policy of the Club has been carried out in a systematic manner and the meetings have been regularly attended. Many instructive lectures have been delivered and the thanks of the Club are due to those Members who prepared them.

The following is a brief resumé of the meetings held :—

September 18th—Annual Meeting, Election of Officers, Chairman's Address, 'The Protection of Our Native Fauna,' by Professor Flynn. October 30th—Lecture by Dr. Bernard Thomas on 'Southern Stars.' November 13th—Micro-Lantern Demonstration. December 11th—Lecture, 'The Mount Field Range,' by Mr. L. Rodway. February 12th, 1914—Lecture on 'Fishes,' by Dr. A. H. Clarke. March 5th—'Notes on Camping,' by Mr. L. Rodway. April 30th—Easter Camp Reports. May 14th—Lecture, 'Entomology and the Public Health,' by G. H. Hardy. June 11th—'Geological Notes,' by Mr. W. H. Clemes. July 9th—'Botanical Studies,' by Mr. J. H. Gould. August 6th—Lecture, 'The Economic Value of Birds,' by Mr. A. L. Butler.

Several Committee Meetings have been held during the year and the Committee wishes to accord its appreciation of Mr. Rodway's generous action in placing a room at our disposal for these meetings.

Publications

During the year an illustrated handbook dealing with the Easter Camp was issued to Members, and it is hoped to issue another number of the *Tasmanian Naturalist* at an early date.

Excursions

The chief Excursion of the year, the Easter Camp, was attended by 100 persons including Messrs. Hedley and Briggs of the Australian Museum, Sydney. That these Experts should come so far for the specific purpose of attending one of the Club's Camps is sure evidence that the work we are doing in the field of Nature Study is becoming widely known and appreciated.

Papers are already appearing in the *Proceedings of the Royal Society* and the *Australian Zoologist*, founded upon specimens collected during the Camp.

Collecting was also done at the several other Excursions held during the year but the attendance at those was not very numerous.

It is greatly to be regretted that one of the principal reasons for the existence of the Field Naturalists' Club, namely, to provide scientific field excursions, has been very much neglected in the past year. The committee recognise that the fault lies, partly with them, and hope, with the assistance of the members, to improve the excursions in the forthcoming season.

Microscope Section

At the suggestion of Mr. H. M. Nicholls, the Government Entomologist, a number of Members of the Club met in the Meeting Room of the Royal Society, on 28th February, 1914, for the purpose of forming a Microscopical Section of the Tasmanian Field Naturalists' Club.

Mr. Nicholls, who was voted to the chair, explained the objects of the Meeting and suggested a line of action.

It was unanimously resolved : That a Microscopical Section of the Tasmanian Field Naturalists' Club be formed and that Messrs. H. M. Nicholls and R. A. Black be Chairman and Secretary respectively for the ensuing year.

So far three Meetings have been held, and these at the Laboratory of the University, which was secured at the instigation of Prof. Flynn and approval of the Council of the University.

Rules have been drawn up and adopted and the subscription fixed at 2/6 per annum.

The object of the Section is the advancement generally of knowledge relating to the Microscope and its use as a means of studying the forms of life that are not otherwise visible.

The Botanical Section

The section has been very active during the present year. Many meetings have been held, mostly informal, and good work in general knowledge of plant-life has been done. Under the care of Misses Barnard and Pocock the Club's herbarium is steadily growing, consisting at present of close upon 300 named and well mounted specimens. The thanks of the Club are due to these ladies.

Statement of Receipts and Expenditure for the Financial Year ended 30th September, 1914

RECEIPTS

	£	s.	d.	£	s.	d.
Balance brought down	0 10 0	14	17	6
Subscriptions paid in advance	...	18	8 6			
,, Current, 1913-14	...	3	0 0			
Hire of Lantern	...	0 10 6				
Bank Interest	...	0 6 9				
				22	15	9
				£	37	13 . 3

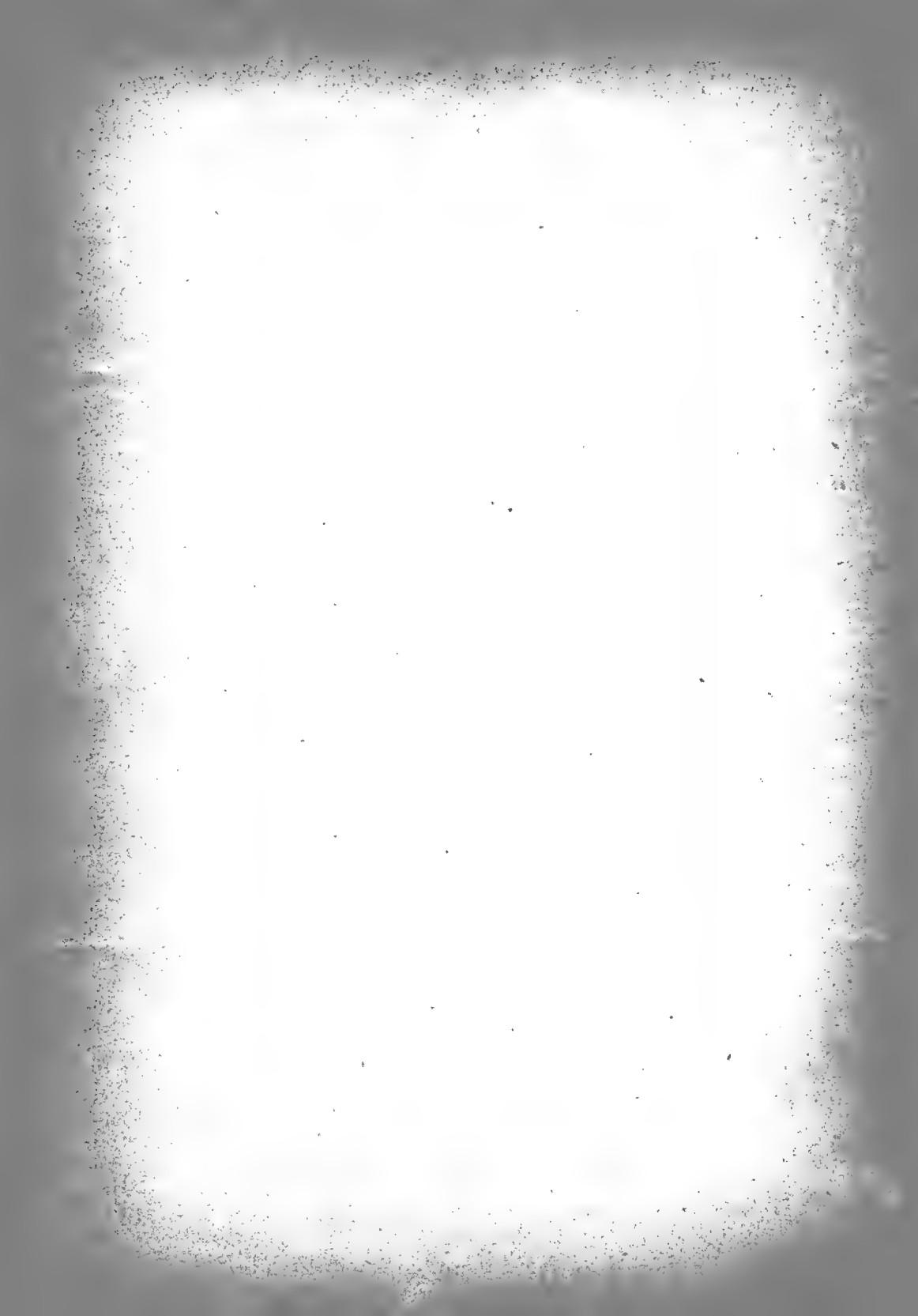
EXPENDITURE

	£	s.	d.	£	s.	d.
Rent of Room	...	4	15 6			
Stationery and Stamps	...	5	18 5			
Printing and Advertising	...	19	6 6			
				28	19	11
Credit Balance	...	8	13 4			
				£	37	13 . 3

R. A. BLACK,

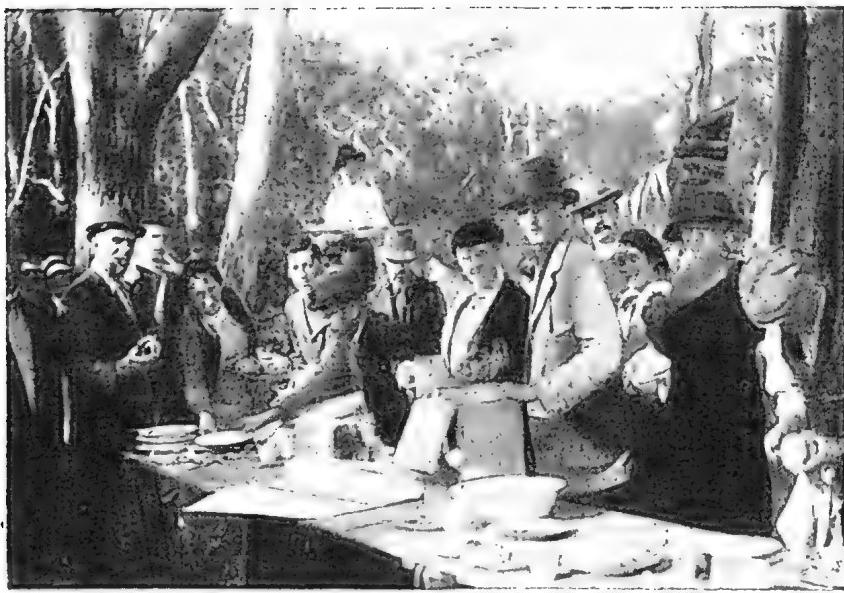
Hon. Treasurer.

Audited and found correct,



LIST OF CAMP MEMBERS

Miss O. Barnard	Mrs. Nicholls
Mr. R. A. Black	Mr. H. M. Nicholls
Mr. E. A. Briggs	Mr. W. Palmer
Mrs. E. A. Briggs	Miss Parkin
Mr. W. H. Clemes	Mrs. Phillips
Mr. C. E. Cole	Mr. C. Pitman
Mr. T. Cranswick	Mr. T. Propsting
Miss Cruickshank	Miss E. Pocock
Mr. E. Cruickshank	Mr. R. Pocock
Mr. J. E. Cuthbertson	Mr. W. Quinn
Mrs. W. F. Darling	Mrs. J. Reid
Mr. C. Darling	Mr. J. Reynolds
Mr. M. Darling	Mr. L. Rodway
Mr. W. Darling	Mr. E. Rodway
Miss D. Dean	Miss A. Rowntree
Mr. E. Dechaineux	Miss F. Rowntree
Miss Dunbabbin	Mr. H. T. Sargison
Miss Elliott	Miss F. Stanfield
Mr. C. H. Elliott	Miss D. Stanfield
Professor Flynn	Miss C. Stanfield
Mrs. Flynn	Miss D. Stoekdale
Mr. E. Flynn	Mr. R. Stops
Mr. J. Gibbons	Mr. W. Stops
Mr. S. Gilmore	Mrs. Sprott
Mr. H. Gray	Mr. W. Sprott
Mr. F. Greuber	Mr. H. Tanner
Mr. D. Guilbert	Mr. W. E. Taylor
Miss Gulline	Mrs. W. E. Taylor
Mr. G. H. Hardy	Mr. R. Tinning
Mr. E. Harrisson	Mr. R. Todd
Mr. R. Harvey	Mr. W. Todd
Mr. C. Hedley	Mr. F. G. Tuck
Mr. E. Heritage	Miss Tuck
Mr. C. Hope	Mr. W. Tuck
Mr. J. T. Hurford	Mr. B. R. Walker
Mr. G. Ingles	Miss C. Walker
Mr. R. Inches	Mr. G. Walker
Miss Ivey	Mr. J. R. Walker
Mr. A. T. Johnston	Miss J. Walker
Mr. J. A. Johnston	Mr. W. Walker
Mr. R. Koch	Mrs. W. Walker
Mr. D. A. Lane	Mr. A. E. Weymouth
Miss F. Lewis	Miss G. Wise
Mr. A. N. Lewis	Miss M. Wise
Mr. H. Lewis	
Mr. C. E. Lord	Assistants
Mr. D. K. Lord	W. Woodward
Miss C. Marsh	W. G. Cole
Mr. W. J. May	C. Wood
Miss F. Miller	H. Hill
Mr. Justice Nicholls	W. Luckman



THE HON. SECRETARY SERVES OUT THE STORES.



MR. JUSTICE NICHOLLS AND PARTY AT LUNCH.



PREPARING FOR AN OUTING.



THE KITCHEN, COOK, AND ASSISTANTS.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1914

(By CLIVE E. LORD, Hon. Secretary)

The Tasmanian Field Naturalists' Club held its tenth annual Easter camp at the Schoutens during the recent holidays, and a record was established as regards the number of members attending. The locality of Freycinet Peninsula has always been a popular one for camping parties, and as soon as it was definitely decided to camp there again this year the committee felt quite justified in chartering from Messrs. Holyman Bros. Ltd. the coastal steamer Koomeela, a vessel of some 200 tons, as it was estimated that about 80 members would attend. But as the date of departure drew near and the trip became more widely known, applications began to roll in, and the ladies' section was soon over-applied for, and numerous intending members had to be refused admission owing to the number being limited. As the time drew on it became apparent that the total membership would reach the utmost number that could be taken, namely, 100, and this proved to be the case, as the lists had to be definitely closed some time before the date of departure.

A private camping party of one hundred members is, it is believed, a record for Tasmania. It comprised many club members and a fair proportion of non-members, whilst two members of the staff of the Australian Museum, Sydney, Messrs. Charles Hedley and E. A. Briggs, came across especially to take part in the camp.

The original intention was to have camped at Cole's Bay, on the western side of the Peninsula, but owing to the wind being strong from the west, with every prospect of continuing, it was decided, during our voyage up the coast, to alter the site to Wineglass (or Thouin) Bay, on the outer or eastern shore, where the camp was sheltered from the wind, and escaped to a very large extent the rain and inclement weather that prevailed in the south-western and other portions of the State during Easter. As it was, the dredging operations had to be curtailed, and the fishing was affected, as the catches were considerably below

the records of previous trips to this locality.

Midnight on Thursday, April 9, found 100 members on board the Koomeela, and a few minutes later the vessel set out for the coast. Dunalley was reached about 5 p.m., and the anchor dropped in order to wait for daylight, so as to negotiate the East Bay Neck Canal, which we passed through later with heavy rain falling, and every prospect of a rainy day. However, as we went up the coast we drew out of the rain belt, but the wind freshened considerably, and some of the members experienced the discomforts of mal-de-mer, and consequently found the trip of rather long duration. Schouten Passage was passed through about 1 p.m., and the anchor lowered away in Wineglass Bay shortly before 3 p.m. on Good Friday afternoon.

Wineglass, or Thouin, Bay is situated on the eastern side of Freycinet Peninsula, which, together with Schouten Island, is generally referred to as "The Schoutens." The peninsula from Cole's Bay to the passage is about 12 miles long, and about four miles at its broadest point, but in two places, namely, between Sleepy and Cole's Bays, and again between Wineglass and Hazard Bays, the width is considerably contracted, and two low-lying necks formed, each being only a mile or so across. Schouten Island, which lies to the south, and somewhat resembles a miniature Australia in outline, is very hilly, and has an area of about 8,500 acres. The general character of the country is completely different from that which is met with around Hobart. The greater portion of the district is very mountainous, but the chief characteristic is the granite peaks and boulders which abound everywhere. Their romantic outline and rich colouring, more especially when seen in conjunction with graceful groups of the Oyster Bay pine, form a type of scenery that cannot be portrayed by brush or camera, but needs actual investigation in its natural grandeur for its unique charm to be understood and appreciated.

The boats were at once lowered, and a start made to get the camp impedi-

menta ashore, which, together with the hundred passengers, took some time, but as the tents and other gear had been sent ashore first it was not long before the miniature township began to spring up rapidly in the sheltered scrub behind the high sand dune which ran parallel with the beach, and formed a most excellent breakwind. The ladies' quarters were picturesquely situated at the south-eastern end of the bay, and bounded on one side by the sea, and on the other by a fresh-water creek that has its source at Hazard Lagoon, and at the time of our visit was discharging a fine stream of fresh water into the bay. The men's quarters were situated more to the southwest, but easily accessible from the beach, while the cooks' quarters and dining tables were set up in the centre of the camp. There were about 40 tents erected, including the stores tent and a large marquee that was to have been used in case of bad weather. But although the wind was troublesome at times, we were able to dine in the open during the whole of the camp. The numerous tents ashore, together with the steamer Koomeela and the yachts Hermione, Pilgrim, and Pacific anchored in the bay, gave this usually quiet locality a very populous appearance, and formed a charming scene when viewed from one of the many points of vantage in the near neighbourhood.

The majority of the members retired to their tents early the first evening, after the tiring events of the day, but the next day the camp woke early to the varied calls of the bush and the roll of the slight surge upon the shore. The weather, although cold, did not stop many from taking their morning dip in the sea, and several parties were to be seen thus engaged each morning before the two signal guns and the sound of an improvised gong denoted that breakfast was ready.

On Saturday a large party was organised and an excursion made to Cole's Bay, while smaller parties made trips to the numerous places of interest in the locality, such as Mts. Freycinet and Hazard, and the many picturesque bays, lagoons, etc., of the district. Some went just for the excursion, others for the sake of pursuing their divers hobbies, and during the remaining days each party, hearing of the advantages of places not yet visited, made every endeavour to see all that was possible in the only too short time that was at our disposal. Some were more inclined to keep in the vicinity of the camp and quietly enjoy the scenic beauties that abounded near at hand.

On Sunday the Koomeela made a trip to Schouten Island, and afterwards trawling operations were carried out in the

Bay. Although not many edible fish were secured, yet the scientists of the party obtained quite a wealth of matter for future investigation. But perhaps of even more interest were the treasures in the shape of specimens that were raised from the ocean's bed on the following day (Monday), when the steamer took a small but intensely eager and interested party several miles out off the coast in order to carry out dredging operations.

The fishing was not up to the standard of previous years, mainly owing to the weather conditions. Flathead, crayfish, and barracouta were exceedingly numerous, but trumpeter were not caught in any number, while other species were in no case very plentiful, although enough were obtained for several meals for all members, and mention must also be made of a rockcod of most noble proportions and weight that was captured in the kelp near the camp.

The whole party rallied round the camp fire each evening, when enjoyable socials were held. Mr. Charles Pitman was usually in the van in these events, which caused the evenings to pass most pleasantly, especially as there were many of the party who possessed considerable musical talent.

It was decided to make an early start on Tuesday morning, in order to make sure of getting through the canal in daylight, so at 5.30 a.m. the steamer's whistle, aided by the camp signal guns, roused all members, and an immediate start was made to break camp. To the credit of all concerned, this was done in good time, the final load being aboard the Koomeela by 8.30 a.m., when the return trip was commenced. This proved a long journey for some, as a stiff southerly breeze caused a considerable roll, and a delay, the canal being reached at 5.30, but an adverse tide and a prominent sandbank detained us for half an hour or more, town being finally reached at 10.45 p.m. on Tuesday night.

The natural history work will be dealt with by the experts concerned, but before closing this report I would again like to draw attention to the advisability of permanently reserving Freycinet Peninsula, and having the flora and fauna properly protected. There is no doubt that at present great destruction is going on, and large tracts of the country have been swept by fire, while the fauna have greatly diminished since our last visit to this locality. An interesting specimen in the shape of a Tasmanian devil was observed on Mt. Freycinet, and a few kangaroo and wallaby noted. It is the intention of the club to bring this matter prominently before the authorities, and it is to be hoped some action will be taken before it is too late.



GROUP OF MEMBERS



110 ATTENDED THE CAMP.

DREDGING OPERATIONS.

(By C. HEDLEY, Assistant Curator Australian Museum, Sydney)

In the programme of the field naturalists a prominent place was given to the study of marine life. Former excursions had made many valuable contributions to our knowledge of life under the sea, and preparations were made to prosecute these researches and to obtain further knowledge.

A persistent westerly gale opposed the efforts of those interested in deep sea dredging. Sheltered though the camp was by mountain and forest, the keen westerly whistled by tent and table, and its force could be gauged by the driving scud overhead and the white-topped waves in the bay.

Each day plans were made and remade, a start was arranged for daybreak, then for after breakfast, finally, but in vain, for the afternoon. Barometers were watched, but refused to rise as persistently as the watched pot refuses to boil. Weather prophets hardened their hearts when the conchologists or ichthyologists besought a favourable forecast and declared that the gale must "blow itself out," whatever that may mean, regardless of scientific needs.

On the last day, the captain consented to take a party to sea, more because the excursion could not be wholly wasted than because the weather gave much hope of success. A small party was picked for the adventure rather for their toughness than for their science. This forlorn hope was escorted to the beach with befitting solemnity, and despatched with high resolve, either to exact tribute from Neptune, or—to yield it. And, as has so often happened to a desperate sally, they achieved more success than they had anticipated.

Rounding Cape Forestier the wind was found to have drawn a little further to the south than was apparent at the anchorage, so that the towering bulk of Mount Freycinet screened the inshore water from the full force of the storm.

Before leaving Hobart, two wire ropes, each 200 fathoms long, were spliced together, in the hope that this would enable the naturalist to penetrate beyond the continental shelf and to explore a new fauna in the deeper colder water that is yet unknown. Such hopes could not now be realised, and the extra length was not put to service.

For the work a wire rope was first shackled to a bucket dredge, and to the tail of that again was fastened a few fathoms of rope trailing an ordinary

dredge. Both were fitted with a swivel link, to prevent the spinning which sadly kinks and strains a rope. About a quarter of a mile from the cliffs this apparatus was lowered overboard. The bucket floated away, and slowly drowned before the steady gaze of seamen and scientists. How loaded would it return, or would it return at all? For a quarter of an hour it was dragged by the steamer drifting seawards before the wind. Then, when it had sunk to a depth estimated at 30 fathoms it was hauled in by the winch. Steadily the rope returned through the yard-arm block, and over the reel, until a red phantom shone in the sea, and a second later broke the surface. A yell from the watchers warned the winchman to slacken speed, and as the bucket dangled in the air the artiste, I mean the artiste, with the camera caught it. Another instant and the boathook caught it too, and dragged it inboard, empty, as empty as it went down. Still, there was a second string to our bow, and the manilla was smartly hauled in, hand over hand, till the dredge clattered against the side. But the dredge net was full and plump, and when tipped on the hatch by eager hands, spread a harvest of living closed Trigonia and dead separate Trigonia valves gleaming with beautiful nacre. A mat of Polyzoa, crabs crawling through a heap of sand, a litter of shells, and through this pile quick fingers ran, snatching here and there a prize, naming and guessing, sorting and spying. Even the sailor folk were infected with our enthusiasm, and rough tarry hands strayed over the pile and picked out with admiration the living jewels of the sea.

But our present business is neither to study nor admire, but to gather the harvest. So the catch was quickly swept into bags and buckets. Again the gear was lowered gently and carefully overboard. By this time we had drifted a half-mile further seawards. On the first occasion the dredge had probably been sliding over the beds of giant kelp which clothe the rocky ground below the cliffs. Hence the failure of the bucket to gather material.

On the second return, both came up with a full charge. As the bucket rose out of the sea a Pyrosoma, like a great white cucumber, was seen balanced across the handle. A hand stretched out from the rail to save it, but before the fingers closed on it the bucket swung and the Pyrosoma floated back into the ocean. Now we estimated our depth at 40 to 50 fathoms, the bucket had ploughed into

fine sand, and the dredge had gathered a miscellaneous mass of shells, Crustacea and Echinodermata, but no Trigonia. Several handsome scallops, *Pecten Medius*, were alive. An urchin was infected in nearly every instance by a gasteropod parasite, a species of *Eulima*, new to science. In a broken *Voluta fusiformis* was a red hermit crab with bristly claws.

Again we cleaned up and lowered the dredge. All this time we had been drifting seaward into rougher water. Now we were about two miles off shore, and were losing the shelter of the land. We paid out 200 fathoms of rope, and while it dragged we gave attention to the coffee and sandwiches which the hostess of the party had thoughtfully arranged; but it was a subject which, sad to say, was not equally attractive to all of us. When this was disposed of we ordered the dredge up.

As the bucket emerged from the water,

some green mud splashing out of its mouth showed that we had reached down to a bed of glauconite. This indicated that the dredge must have sunk to about 80 to 120 fathoms, a depth supported by the fauna; for we extracted from the meshes of the dredge a number of fine solitary coral, three inches in diameter, a *Flabellum* by name. Under the cultivation of Professor Flynn, these subsequently blossomed into superb flowers of waving tentacles.

By this time the vessel had reached water so rough that our captain declined to go further out, so we steamed back to our first station on the Trigonia ground under the cliffs, and repeated our experiences.

Though the party had not fulfilled its aim of reaching unexplored depths, yet it returned to camp with the satisfaction of having accomplished useful work.

THE ENTOMOLOGY OF FREYCINET'S PENINSULA.

(By G. H. HARDY, Assistant Curator Hobart Museum)

The entomology of Freycinet's Peninsula during April at least is very poor. Barking gave the best results, as far as numbers are concerned. Searching under stones gave no results of importance other than ants. Beating was a failure, due to the rough winds, and very few insects were on the wing.

Aptera.—Only one common species of this order was observed, but this was in greater numbers than around Hobart.

Orthoptera.—One grasshopper only was taken, and several very common species were noted. Two common species of cockroaches were also observed.

Neuroptera. — One specimen of the introduced golden-eye or green-lace-wing fly was observed. No native species were observed or taken.

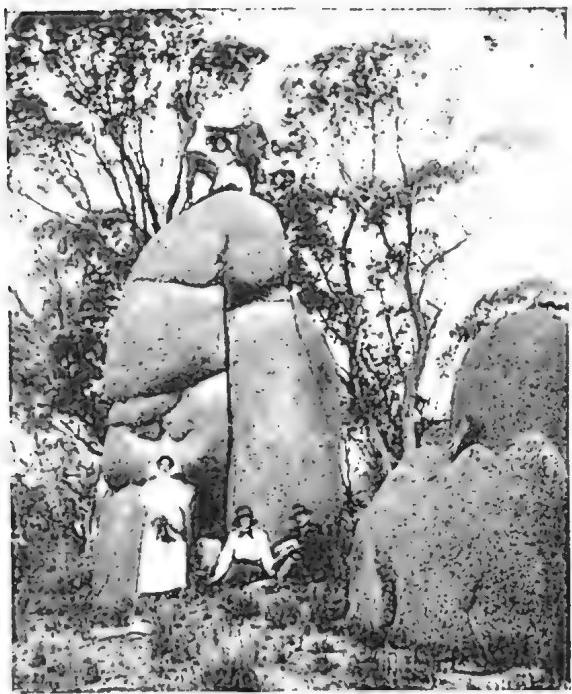
Hymenoptera.—Two species of ichneumons, four bracons (one a new species to the Museum collections), two thynnids or flower-wasps, one pompillid, one apidæ or bee, and one ant were taken. Several species of ants were seen, but all of the commonest species. Even these insects were scantily distributed.

Coleoptera.—No rare beetles were taken, although several new species to the Museum collections were a welcome addition. In all, about 33 specimens, belonging to 20 species and 11 families, were brought back.

Lepidoptera.—Of butterflies, only the large brown species, *Heteronympha merope*, common everywhere, was observed. Only a few small moths were observed, and the only capture of importance were some larvae extracted from the seed-heads and stems of the grass tree brought back by various members of the camp. From this source several full-grown larvae and one pupa were collected.

Diptera. — Diptera offered but scanty selection, only two mosquitoes being captured, unless we count those that other members of the party captured and spoilt in the usual reckless manner indulged in by non-entomologists. The two brought back have been sent to Mr. F. M. Littler, of Launceston.

Another blood-sucking fly, in the form of a Leptidæ (a family allied to the Taban-



VIEWS ON MT. HAZARD.

nidae, or March-fly, a notorious blood-sucking family) was observed in quantities on the Coles' Bay side of the Hazard Mountains. The blood-sucking habits of the Leptidæ are apparently, not generally recognised, although they are recorded from several parts of the world, and I regret I did not take the opportunity to settle the point on the spot whilst I had the chance.

One species of Anthomidæ, and one Dexidae, were also captured.

Hemiptera.—Five species, belonging to five families, were taken, but all belong to common species around Hobart.

Taken as a whole, the entomological aspect of Freycinet's Peninsula was very poor indeed, but there were signs, in the form of larvæ and ovæ (eggs), that promise the district having happier times at some other portion of the year. Reviewing the families that should be in evidence at this time of the year, together with those that were actually observed and taken, I was rather struck with the lack of grass moths, the commoner bushflies, and many families of parasitic and predaceous habits.

Three days in one district, however, is not long enough to form a definite opinion concerning its entomological aspect, but 73 insects only collected in three days, even at this time of the year, is very small.

Since writing the above, I have heard from Mr. Littler about the two species of mosquitoes sent to him, and he informs me that one of the species (*Nysorhynchus annulipes*) has only been taken by himself singly on two occasions. He has, however, subsequently had a few more sent to him, and therefore, although rarely taken, it seems to have a wide distribution. The other species is common.

Referring to the caterpillar in the grass-tree seed-heads and stems, he informs me that he has met with a species of *Noctuæ* having this food-plant, but was not successful in rearing it.

From Mr. White, to whom I have sent

full particulars, I have received a reply to my queries concerning the blood-sucking Leptidæ, and the following extract is of general interest:—

"I am much interested by your letter of yesterday, more especially as I have now nearly finished a paper giving a revision of the Tasmanian Leptidæ and the related families. The species that you have discovered is quite new to me. . . As to the biting habits, you are probably quite correct in your observation; although rare in the Leptidæ, it is not unknown. In the Palæo-Arctic region the only genus accused of blood-sucking is *Leptis*, and even this is open to considerable doubt. In North America the females of some species of *Syphoromyia* are undoubtedly blood-suckers. Coming to Australia, two undescribed species of Leptidæ that are blood-suckers occur in New South Wales. Mr. Austin states that they are allied to *Syphoromyia*. I am not acquainted with these myself."

"As to the systematic position of the species, the venation of the wings, as shown in your sketch, does not (with one possible exception) agree with any of the 23 genera of Leptidæ of which I have particulars. It is almost certainly a new genus, and, from what you say of the habits, probably nearly allied to the two undescribed New South Wales species."

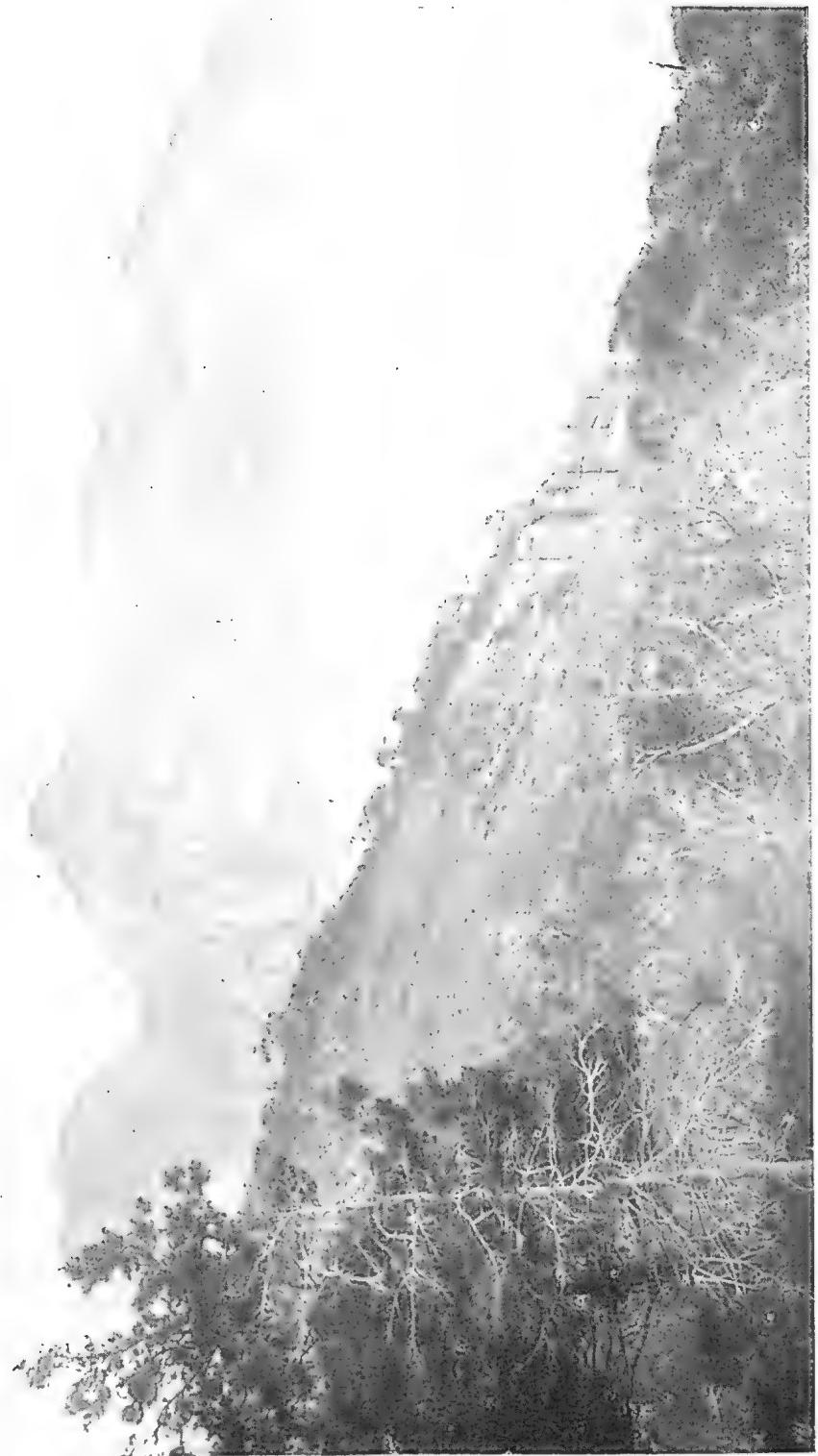
Mr. Austin, mentioned above, is a great authority on blood-sucking Diptera at the British Museum.

Mr. White will describe this species in his forthcoming work on the Tasmanian Leptidæ.

Searching amongst my collection of Tasmanian bees I find the bee taken at Freycinet's Peninsula is new to the collection. It will come as a surprise to many to hear that my collection of bees shows that well over sixty definite distinct species of bees occur in Tasmania. I have a further dozen or more doubtfully distinct species. Only 37 species of bees have as yet been recorded from Tasmania. (This number does not include the honey bee, an introduced species).



ENTRANCE TO WINEGLASS BAY, FREYCINET PENINSULA, EAST COAST



GEOLOGY OF WINEGLASS BAY.

(By W. H. CLEMES)

On the eastern side of Freycinet Peninsula is a deep bay, called Wineglass or Thouin Bay, a gem set in the midst of rugged granite peaks of surpassing grandeur. From our camping site we looked across the deep blue waters of the bay to a magnificent stretch of peaks of rosy granite, with a pure white beach stretching crescent-wise beneath—a picture worthy of the pencil and brush of any artist. It seems almost desecration to analyse such a thing of beauty, and to probe and delve for its hidden secret, but the interests of science must be pleaded in extenuation.

The granite belongs to an almost lost period of time, as far as Tasmania is concerned, situated between the Silurian and Permo-carboniferous periods, when no sediments that can be recognised were laid down. But, fortunately for Tasmania, a great igneous intrusion took place, and huge masses of granite, both on the East and West Coasts of Tasmania, forced and worked their way into the overlying strata, and consolidated deep down beneath the surface, bringing with them the rich stores of mineral wealth that have made our little island so famous. Subsequent denudation has exposed these rock masses, and given us such magnificent rugged scenery as only granite country can give. These rocks for the present have been placed in the Devonian period.

A critical analysis of the rock itself cannot be carried out without microscopic examination. The preparation of the slides is a lengthy process, and so I must content myself with a few general remarks on composition and structure, as viewed in hand specimens. The rock appears to consist principally of biotite mica, pink orthoclase felspar, and quartz. Mr. A. D. Mackay, in a former paper, also mentions Muscovite mica, plagioclase felspar, and chloride as accessories. The rock varies greatly in structure and com-

position. On the southern side of the bay it is practically composed of a rich reddish-coloured felspar and quartz, little or no mica being present, but on the northern side in places black mica is the predominant mineral, and the felspar is almost white. Quartz is always present in abundance.

Secondary veins are very noticeable, the granite composing them being much closer in texture, due to the squeezing it got in pushing its way up through the cracks and joints in the older rock. The crystals are much smaller than in the normal granite, and approximate more to the microgranites.

In many places the granite was intersected by great veins of quartz, white to rose-coloured, with numerous nests of rock crystals. There were also dykes of diabase (?) cutting across the country in a north and south direction. This rock was highly porphyritic, and studded with great crystals of felspar, which had been absorbed during its passage up through the granite. The great cliffs to the south show signs of internal movement, which probably took place prior to consolidation. The vegetation on the whole is scanty, owing to the poorness of the soil, which is largely composed of quartz.

Along the coastline the bare rock stretches up for a considerable height above high-water mark, an eloquent tribute to the force of the winter gales.

In places the granite appeared as great boss-like masses, with smooth, rounded surfaces curiously streaked by descending waters charged with mineral matter. In others it was columnar and much broken up, with great cracks running in all directions. In fact, the varied forms seemed endless, and the whole district would prove an almost inexhaustible mine for geological research, that would well repay an enthusiastic geologist to exploit, the problems to be solved appearing to be endless and varied.





Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1915

To Maria Island, East Coast
— — — TASMANIA — — —

GENERAL REPORT

By Clive E. Lord, Hon. Secretary

ENTOMOLOGICAL NOTES

By G. H. Hardy, Assistant Curator, Hobart Museum

DREDGING OPERATIONS

By Professor Thomson Flynn, B.Sc.

— — —
Reprinted from "The Tasmanian Mail."
— — —

LIST OF CAMP MEMBERS

Mr. G. Abbott	Miss Lewis
Mr. T. P. Arnold	Miss Miller
Miss O. Barnard	Mr. L. Rodway
Mr. C. E. Cole	Miss A. Rowntree
Miss Cruickshank	Miss F. Rowntree
Mr. E. Cruickshank	Miss K. Packer
Miss D. Dean	Mr. H. T. Sargison
Mr. L. Dechaineux	Miss M. Simmons
Mr. Dick	Mr. R. Stops
Miss S. Dunbabbin	Miss Tenniswood
Professor Flynn	Miss G. Wise
Mr. D. Guilbert	Miss M. Wise
Mr. G. H. Hardy	Assistants.
Mr. E. Heritage	W. H. Woodward (Assistant-in-Charge).
Mr. Hickman	G. Keenan
Miss Hookey	E. Plane
Mr. E. Kirby	V. Molross
Mr. C. E. Lord	W. Woodward, Jun.
Mrs. C. E. Lord	



A Ladies' Camp.



Lunch Time.



The Cliffs near Darlington.



On the Rocks.



Creek Scene near the Old Waterworks.



Mr. Dechainoux on the Trolley.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1915

(By CLIVE E. LORD, Hon. Secretary)

The Tasmanian Field Naturalists' Club held its eleventh annual Easter Camp during the Easter holidays, the site this year being Maria Island, off the East Coast of Tasmania. It has been visited on several previous occasions, but owing to the numerous places of scenic and historic interest that abound there, the charm of the locality by no means fades, but rather grows with more familiar acquaintance.

The party this year consisted of 36 members, which is a small one when compared with the full hundred taken last year, but owing to the effects of the war and other causes the committee did not feel justified in running a large camp. The outing may be counted, from a social standpoint, as being the most successful ever run by the club, while the students of natural history, especially those interested in dredging the ocean's depth, had a successful time. The weather, of course, exercised a great influence on the trip, and it is generally agreed by all that last Easter was the most perfect we have had for years; in fact, during the whole of our stay each day was a perfectly calm autumn one, with never a suspicion of those cold westerly squalls we felt so keenly last year at Wineglass Bay, and our regrets were that our Sydney friends were not with us this season in order that amends might be made for the last trip when the weather prevented such a lot from being done.

The site of the camp was near the settlement of Darlington, which is placed on a pretty spot at the northwest corner of the island, where a creek meanders down from the hills, and breaks through to the sea through a crescent-shaped beach of shining white sand, at the far end of which the jetty juts into the sea, while at the southern extremity stands out the knoll on which

Mr. Bernacchi erected his famous pigeon loft, portion of which is still standing. The view from the summit of the loft is interesting, as it opens out the settlement as a map before the observer, and from whence he can pick out the convict buildings, or what remain of them, as some have been pulled down, while others, although erected in the twenties, still stand, as do a good many of Bernacchi's structures, which were raised in the eighties.

The history of Maria Island is interesting, and contains two eras of importance—the convict settlement, and later the boom and burst period of the Bernacchi company. The first European to record the island was Tasman, who noted it in his voyage of 1642, but we do not hear of it again until Cox visited it in 1789. Then the French expedition under Captain Baudin called at the island in 1802, and landed in order to bury their surgeon, M. Monge, whose remains are supposed to lie near the shores of Chinaman's Bay. The first settlement took place about 1825, when the island was chosen as a convict station, and many of the structures then erected may be seen standing to-day, the old barn and the store standing out prominently when approaching the island from the west. The Bernacchi era constitutes to date the most flourishing period the island has experienced. This was towards the end of the eighties. This period was the outcome of the efforts of a company formed to develop the natural resources of the island, and a great deal of work was done in the way of erecting buildings, including large cement works and kilns, a hotel of 30 rooms, the plantation of vineyards, and numerous smaller structures, all of which are to-day in a more or less state of decay. However, if the cement manufacturing portion of the company's proposals were once more set to work

it is probable that they could be made to pay well, as there is not the slightest doubt that the crude material for the manufacture of cement exists there, both in quantity and quality. However, before we attempt to anticipate any future periods of prosperity for this settlement it may be as well for the purposes of this report to record our doings for the few delightful days that we were enabled to spend on this picturesque isle.

A start was made from Hobart at 8 a.m. on Good Friday morning, and the East Bay Neck Canal was passed through soon after midday. Lunch was served during the run through Blackman's Bay, and soon afterwards the boat passed through the Narrows, and a direct course was shaped for Maria Island, which could be plainly seen across the intervening stretch of the South Pacific Ocean. After calling in at Chinaman's Bay, and landing several members of the party, who preferred to walk to Darlington, we ran to Rheban, and then to Darlington jetty, which was reached about 4 p.m. The landing of the camp impedimenta was immediately proceeded with, and willing workers soon loaded up the several waggons and drays that had been commandeered for our use in order that our many and varied articles and packages might be transported to the selected site, which was about half a mile or more from the beach, and in close proximity to the famous cement works of the Bernacchi era of the island's history. As soon as the waggons had brought up the first loads the ring of axes and other tools could be heard, all being actively employed in order that our embryo township might be securely erected before darkness closed in. The site was an ideal one, as, although some distance from the sea shore, a mountain stream ran along the line of tents, ensuring a plentiful supply of water, as well as forming a splendid adjunct from a scenic standpoint. The tents were placed in a sheltered belt of trees that formed an excellent breakwind, as well as allowing the several sections of the camp to be placed in close proximity, and yet without encroaching on one another. As soon as the tents had been erected and our future homes put in order the very welcome sound of the dinner gong echoed through the trees, and ample justice was done to the first camp meal, which was served under

romantic conditions among the gum trees, with the ruins of the cement works looming out above the trees, while over the hills behind rose in its full glory the Easter moon. After dinner a large fire was built, and an enjoyable musical evening spent.

On Saturday several excursions were made. The largest party spent the morning in an inspection of the settlement and fossil cliffs, and in the afternoon set out to climb the Bishop and Clerk, a mountain overlooking the sea at the southern end of the cliffs. The climb proved much harder than had been anticipated, and the ladies of the party found the going rather difficult towards the summit, which was reached at 4 p.m. The ascent was well worth the trouble, for the vista unfolded was superb. Away to the north the Schoutens stood out boldly, the summits of Mt. Freycinet and the Hazards being plainly discernible, while further west, on the mainland, ranges could be discerned rolling back hill upon hill from the shores, lapped by the sea, away into the dim distance, where the horizon was formed of mountain and cloud entwined. To the south-west Mount Wellington's homely shape was easily noticed, as well as other hills to the southward, while as the eye roved round, the settlement of Darlington appeared through a break in the belt of Oyster Bay pines seemingly almost at our feet. After enjoying this panorama for some time, and allowing the photographers of the party to make records of our visit to the summit, the return journey was commenced. This proved rather a tiring trip for some of the party, and camp was not reached until darkness was falling.

On the following day a number of members enjoyed a twenty mile tramp to Chinaman and Reidle Bays, while others spent the time in fishing or in making excursions to places of interest in proximity to the camp.

On Monday the chief event of the day was the dredging trip, and those members interested in this branch of science spent a very profitable day in the s.s. Warrentina, which was skilfully handled by Captain Kerr, enabling the dredge and trawl to be worked to the best advantage. The evening campfire socials were a distinct feature of the camp, and their success was due partly to the ideal weather conditions and to those members who contributed musical



(1) While the billy boils. (2) A group of members.



(4) The cooking staff. (5) An al fresco meal.

items. Mention might well be made of Messrs. Guibert's and Pitfield's zonophones, as well as Mr. Hector McRae's items with the aid of the bagpipes. The camp fires were much larger than usual, as all hands used to assemble before dinner each evening and build the fire, the logs in many cases being about ten feet long and two or three feet in diameter.

During the trip a fair amount of fishing was done, flathead being taken in large numbers, while rock cod, perch, and other varieties served to vary the haul. One fishing party, consisting entirely of ladies, had a lively quarter of an hour owing to hooking, but failing to land a shark whose dimensions could not be accurately determined owing to conflicting evidence.

On Tuesday morning the camp was broken up, and our baggage carted to the jetty to await the arrival of the steamer, which finally had all aboard, and started for home at 3.30 p.m. Owing to darkness falling and a very low tide at the Canal, it was rather doubtful for a time whether we should get through or not, but owing to good seamanship on the part of the skipper we were brought safely through. During the voyage to town the zonophone was again requisitioned, and the camp-fire songs and choruses sung. The smooth sea and musical items caused the time to pass fairly quickly, and we were landed at the Hobart wharf at 11 p.m., thus bringing to an end one of the most enjoyable outings ever held by the Field Naturalists' Club.

ENTOMOLOGICAL NOTES

(By G. H. HARDY, Assistant Curator, Hobart Museum)

Considering the beautiful weather conditions just before and during the camp, the entomology of Maria Island was very poor, even for Easter.

Aptera.—A few stray specimens of this order were noted, but not taken.

Orthoptera.—Very scarce, none taken; all the specimens noted were of the commonest kinds.

Neuroptera.—One specimen of *Hemerobiina* was taken and one Dragon-fly seen; no more specimens were seen, although a special search was made for this order.

Hymenoptera were very scantily represented. One *Protoctrypidæ*; eight *Braconidæ* (3 new to my collection); one *Ichneumon*; one female *Thynnidae*; one *Sphegidæ* (Subfam. *Larridæ*); and three *Apidæ*, or bees. Various common ants were noted, but not taken.

Lepidoptera.—Butterflies were moderately plentiful, especially our two commonest browns, but nearly all were very battered and worn. Moths were more plentiful, but only two specimens of *Hepialidæ* were taken. One of these, *Trietena (Pielus) labyrinthica*, is a very magnificent specimen, with a 6½ in. expanse of wing.

Diptera.—Flies were moderately represented, but only two specimens were taken, one a Syrphid, genus *Trygriphus*, and the other a species of *Muscidæ* *Acalypratæ* quite new to me; four specimens were taken on the sand dunes around Darlington Bay; the wings were milky white, with a large black blotch covering the apical half of the wing, more or less reaching the tip.

Hemiptera were represented by a few odd specimens of *Reduviidæ* and *Capsidæ*. None were collected.

DREDGING OPERATIONS

By PROFESSOR THOMSON FLYNN, B.Sc.

On this occasion, as on all others, one of the principal objects of the annual Easter camp of the Field Naturalists' Club was the collection of zoological specimens, with the object of lending aid to the elucidation of any problems connected with the lower fauna of the State. In the accomplishment of this object the use of the dredge and the trawl plays an important part, and to a great extent this is the most fascinating portion of the work, but land and shore collecting, as well as surface netting, are to be counted as important factors towards attaining the desired object.

The Easter of this year was not the first occasion on which the members of the club had visited Maria Island. On the last occasion (1912) successful dredging was accomplished in 100 fathoms off the coast of the island.

Other expeditions have dredged near Maria Island at various times. Some few years ago the Aurora (of the Australian Antarctic Expedition) made successful hauls in 65 and 1,300 fathoms in the open sea, a few miles off Reidle Bay. The Commonwealth trawler Endeavour also explored the waters between Maria Island and the mainland, and last year the members of the British Association for the Advancement of Science took part in a scientific excursion to Maria Island, and important collections of sponges and other invertebrates were on that occasion made by Prof. Dendy and Dr. Tattersall, collections which, it is hoped, will help materially in bringing the lower marine fauna of Tasmania under the notice of British scientists.

The East Coast of Tasmania has, owing mainly to the efforts of the Field Naturalists' Club, been scientifically well explored, and the following list shows the localities of the various camps and the depths in which dredging has been carried on:—

1909.—Wineglass Bay, 5-35 fathoms.

1910.—Cole's Bay, 10-15 fathoms, 100 fathoms.

1912.—Maria Island, 10-20 fathoms, 100 fathoms.

1913.—Safety Cove, 5-20 fathoms, 60 fathoms.

1914.—Wineglass Bay, 5-20 fathoms, 65 fathoms.

1915.—Maria Island, 5-20 fathoms.

Such a list is one of which any club might be proud, and, in conjunction with the other work carried out, should in a short time make it possible for a comprehensive survey of the Tasmanian marine fauna to be carried out.

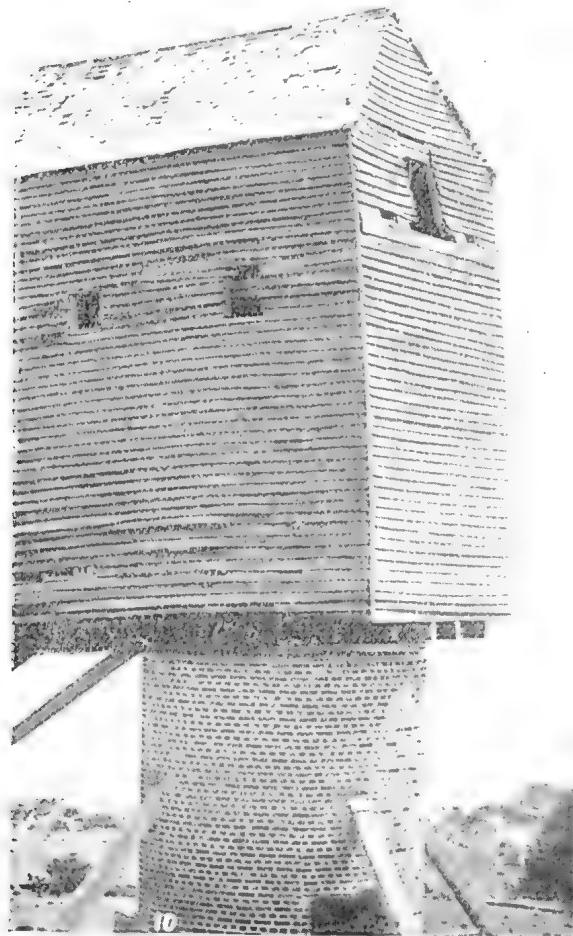
As regards the Easter trip of 1915, dredging was carried out under ideal weather conditions. The apparatus consisted of a small dredge (intended only for a stand-by, and not used on the trip), and a 10ft. trawl specially purchased by the trustees of the Tasmanian Museum. The use of such a trawl in a boat like the Warrentinna is not unattended with difficulty, and Captain Kerr is to be congratulated on his excellent handling of the boat and his good humour through all the necessary dislocation of the ship's routine which follows use of dredging material.

The area covered by dredging was an extensive one, between Maria Island and the mainland, in depths varying from five to twenty fathoms. The sea bottom here is covered by a carpet of the most gorgeously hued sponges, amongst which grow masses of seaweed. It is, perhaps, not advisable to go into details of the "catches," but it may be mentioned that they included almost every form of marine life, polyzoa, hydrozoa, worms, starfishes, and other echinoderms, crustacea, mollusca, etc., besides fish of various kinds, including torpedo (electric) rays, sole, flathead, "pipe" fish, and others.

During dredging operations the surface net was handled to great advantage by Mr. Dechaineux, and the result showed that the sea here abounds in the small crustacea (Copepoda), pointed out by Professor Herdman and others as being of so much importance



Afternoon Tea.



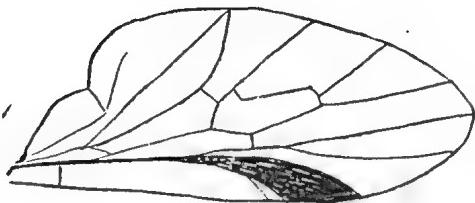
The Old Windmill, a relic of the early Settlement.

in their relation to fish food. Besides these, there were numbers of medusæ, and larvæ of various crustacea and echinoderms.

Some larger animals were got in the surface net by working from the pier; true jellyfishes and peculiar jellyfish-like creatures, called "etenophores," which possess a globular body beset with eight meridional bands, each band bearing vibratile comb-like structures, the movements of which give it a beautiful iridescent appearance. Round the pier could be seen the larvæ of the common crayfish in such quantities as

to form clouds in the water which totally obscured the bottom.

Little shore collecting was done, it having been exhausted on previous trips; but it would be well, perhaps, to mention that two students of the University of Tasmania, Messrs. V. Hickman, B.Sc., and Brettingham Moore, who lately visited Reidle Bay, have brought back some important collections, including a number of shore-living Pycnogonida ("sea spiders") the first to be recorded from Tasmania. Several have previously been found in waters ranging from 10 to 65 fathoms.



Wing of *SPANIOPSIS TABANIFORMIS*, White, a species of blood-sucking fly belonging to a new genus, and species of the family Leptide, was caught at Freycinet's Peninsula during the Easter Camp of the Tasmanian Field Naturalists' Club, 1914. This species was sub-

sequently described by Mr. Arthur White in the Proceedings of the Royal Society of Tasmania, 1914.

The general appearance of this fly is like the March-fly (*Tabanidæ*), but very small, being slightly under $\frac{1}{4}$ inch in length.

The Fossil Cliffs near Darlington,





The Neck joining the North Island and the South Island,

1916

Tasmanian
Field Naturalists'
Club

Easter
Camp=Out

1916

To
Eaglehawk Neck
Tasmania



11



GENERAL REPORT

By CLIVE E. LORD
Hon. Secretary

BOTANICAL NOTES

By L. RODWAY
Government Botanist

ENTOMOLOGICAL
NOTES

By G. H. HARDY
Tasmanian Museum, Hobart

GEOLOGICAL NOTES

By W. H. CLEMES
B.A., B.Sc.

ORNITHOLOGICAL
NOTES

By CLIVE E. LORD

Reprinted from "Tasmanian Mail"

The Mercury Printing Office, Hobart



Eaglehawk Neck, looking South.

(x denotes Camp Site.)



Some of the Members.

LIST OF CAMP MEMBERS



Mr. W. Abbott	Mr. F. Heyward
Miss O. Barnard	Miss L. Holmes
Mr. F. B. Cane	Miss Ivey
Mrs. F. B. Cane	Miss M. Johnston
Mr. C. H. D. Chepmell	Mr. E. Kirby
Mr. W. H. Clemes	Miss F. Lewis
Mr. C. E. Cole	Mr. C. E. Lord
Mr. E. Cruickshank	Mrs. C. E. Lord
Mr. L. Dechaineux	Miss F. Miller
Professor T. T. Flynn	Miss E. Pocock
Mr. G. H. Hardy	Mr. L. Rodway
Mr. E. D. Harrisson	Mr. H. Sargison
Mr. R. C. Harvey	

MR. W. L. MAY'S PARTY.

Mr. W. L. May	Miss P. May
Mrs. W. L. May	Master E. May
Miss L. May	Miss Walker
Miss C. May	

ASSISTANTS.

Mr. W. H. Woodward (Assistant-in-Charge)
 Mr. V. Molross.
 Master E. Woodward.



Smoke, O!

Waterfall Bay.

The Cook's Call
for Breakfast.

The Camp Artist.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1916

By Clive E. Lord, Hon. Secretary

The Tasmanian Field Naturalists' Club held its 12th annual Easter camp during the recent holidays. Owing to the war the camp was only a small one compared with previous years, but new ground was explored by visiting Eaglehawk Neck. The previous operations of the club are shown by the following list of places visited, together with the number of members who attended:—

- 1905.—Bream Creek; camping party, 9.
- 1906.—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907.—South Bruny; camping party, 27.
- 1908.—Soldiers' Point (Maria Island); camping party, 27.
- 1909.—Wineglass Bay (Freycinet Peninsula); camping party, 84.
- 1910.—Cole's Bay (Freycinet Peninsula); camping party, 97.
- 1911.—Southport; camping party, 60.
- 1912.—Darlington (Maria Island); camping party, 69.
- 1913.—Safety Cove, Port Arthur; camping party, 80.
- 1914.—Wineglass Bay; camping party, 100.
- 1915.—Maria Island; camping party, 36.
- 1916.—Eaglehawk Neck; camping party, 35.

The club decided on a new departure this year, as an advance party left before the main body and prepared the camp for their reception. On Wednesday morning, April 19, ten members left at 9 a.m. in the s.s. Breone, taking with them all the camp impedimenta. They experienced a delightful passage to the Neck, which was reached shortly after lunch. Here several carts were awaiting our arrival, and willing workers soon had portion of the club's goods loaded up and despatched to the camp site, which was about a mile or more from the jetty. The various sites were pegged out, and a start made erecting tents, while the ladies of the party prepared a welcome repast. The main camp was set up in the scrub, about 100 yards from the beach, while the ladies' tents were pitched in a clearing on the brow of the low

cliffs overlooking the bay. A pleasant stream of fresh water meandered through the camp, and this served to make the site an ideal one.

The members of the working bee retired to rest early, but were just as early in rising the next morning in order to devote a little time to study the locality.

Eaglehawk Neck is the name given to the narrow strip of sand connecting Tasmania's Peninsula with the rest of Tasmania. In the early days of Tasmania's history it formed the gateway to Governor Arthur's "Natural Penitentiary." On the eastern or ocean side of the Neck is Monge or Pirates' Bay. It is generally known by its latter designation, but the former would appear more correct. It was named Monge Bay in 1802 by the French explorer Baudin, but it was not until about 1822 that, owing to some bushrangers seizing a schooner that was in the bay, it came to be spoken of as Pirates' Bay. It was across the Neck that the famous line of dogs was stationed in order to make the escape of convicts practically impossible. There are many historical descriptions of this line, as well as a drawing, which is at present in the Hobart Museum.

Monge Bay is a crescent of sand set in a rugged coast. To the north and south there are cliffs containing many natural wonders in the shape of subterranean and submarine passages and caves. The most notable of these lie to the south. At the northern end of the bay the arc is completed by Clyde Island, while at the southern end Fossil Island intervenes between the silver strand of sand and the rocky cliffs. In close proximity to Fossil Island is the Blowhole, which can easily be viewed from both the land or the sea entrance. From here onward numerous formations are met with. Tasmania's Arch is well known, but a close exploration shows that the Devil's Kitchen surpasses all the others. A superficial observation shows a yawning hole in the earth about 100 yards in diameter. A passageway leads through the Cliffs from this opening to the sea. The waves foam and roar over a portion of the floor of this gulch, while the higher portions are



At Breakfast.



A Picnic Party.

covered with scrubs and ferns. A closer examination of this wonder of Nature reveals many hidden passages and caves. Some so rectangular in shape that it would appear as if they were the work of man. When standing at the bottom of this chasm, and noting the various channels and gulches, one recalls to mind the passage in "For the Term of His Natural Life," wherein Marcus Clarke describes this wonder. Further south is Waterfall Bay, down the rocky cliffs of which a mountain torrent descends with a rush to the sea. Towering above is a summit known as "The Pinnacle," from which a delightful panorama is unfolded to the view. With such scenic gems as the foregoing in close proximity members were inclined to set forth and explore, but there remained a large amount of work to be done, and this, of course, was given pride of place. By the afternoon the advance guard had their work complete, and everything in readiness for the reception of the main party.

The majority of the campers left Hobart at 6.30 p.m. on Thursday night by the s.s. *Carteta*, and had a smooth trip down the river and through the various bays. The Neck was reached about 11 o'clock, and portion of the advance party welcomed them at the jetty, while others stayed in camp to prepare supper. A walk round the crescent-shaped shore soon brought the party to Pendennis, the property of Mr. Clemes, who had kindly granted the club permission to camp on his property. Once supper was disposed of the members were shown their new homes, and the camp retired to rest.

On Friday excursions were made to places of interest in the locality, while one party went searching for rare mosses in the sylvan glades of the gully behind the camp. Unfortunately, a heavy shower of rain fell late in the afternoon, which caused some of the explorers to arrive back in camp in rather peculiar fashions. During the afternoon Mr. W. L. May and party arrived by motor-car, which served to bring the camp up to its full strength.

On Saturday a party of the more energetic members set out to climb "The Pinnacle," and achieved their object after a good climb. Another party followed the course of the mill tramline far into the bush in the search of botanical specimens. Other parties made trips to divers places, some in search of specimens, others just for the enjoyment of the outing.

On Sunday a large party commandeered the district's supply of conveyances, and made an excursion to Port Arthur. The road follows along the shore of the inland bay for about six miles until Taranna is reached. It then turns in-

land, following the route of the old convict "railway" to Long Bay, and thence to Port Arthur. From Taranna to Port Arthur is about seven miles. Three miles south of Port Arthur is Safety Cove, where the club camped in 1913, and nearby is situated the "Remarkable Cave." This natural wonder surpasses some of more advertised sights of the district, and it seems peculiar that not more is heard of it. The party had lunch in the cave, and after visiting Mr. and Mrs. Tanner at the old Government Farm, they returned via Port Arthur to the camp. Portion of the party did not journey as far as Port Arthur, but spent their time in exploring the gullies near Oakwood. The botanists got their reward. On returning to camp it was learned that the "energetic party" had, with the aid of many fathoms of rope, succeeding in exploring Tasman's Arch and several of the lesser known caves. They had also spent a considerable time in the Devil's Kitchen, but had not the time or means to explore it thoroughly.

On Monday several excursions were organised. One party went northward, noticing the Natural Pavement and other places of interest. Others pursued their hobbies in various directions. The camp artist was noted utilising the last day in securing, on canvas, his impression of the shore. Nearby a professor of biology could be seen endeavouring to induce minute objects to forsake the mighty deep and take up their abode in small glass jars. And so each member pursued his calling, the outcome of which we hope will be another link in the chain of knowledge concerning Tasmania's natural history.

The camp-fire socials held during the evenings in camp were quite a feature of the outing. We were fortunate in having an able conductor in Mr. F. Heyward, who spared no pains in organising "the choir." The epics composed by the camp poet will doubtless be long remembered by those who took part in this camp, and they may be heard by future campers as "the choir" are already drawing up a scheme for their use again at the next camp. Another factor which materially helped the musical programme was Mr. F. Cane's zonophone. His kindness in bringing it to camp was much appreciated.

Tuesday morning arrived only too soon, and with it a change in the weather. Except for some rain on Friday afternoon we had had good weather, but our last morning was spoilt by rain. This made breaking up camp a little unpleasant, but many willing workers soon had the majority of the tents down and the camp impedimenta packed on the carts for transmission to the jetty. One large



The Ladies' Tents.



The Cook's Department.

tent, generally spoken of as "The City Hall," was left to the last, and in this members had breakfast. Later the rain ceased, and allowed a few hours' leisure before assembling at the jetty.

We boarded the steamer at 3.30 p.m., and settled down to enjoy a four hours' journey to Hobart. Owing, however, to the steamer calling at several ports in quest of freight, and the darkness of the night making navigation rather difficult, the fact must be placed on record that we "didn't get home till morning."

The natural history work will be treated by the leaders of the various sections, but before closing this report I would like to draw attention to the need for further developing the natural attractions of the district, as hundreds of

tourists visit this locality every year. For instance, at a small outlay steps could be formed so that anyone could descend to the bottom of the Devil's Kitchen. A few additional notice boards would also be an asset, especially if they denoted the distance between the various sights. Also, it would be an advantage if the Tourist Department erected a small hoarding near the jetty, and had a map of the locality showing the position of the main features of interest, together with the distances, from a fixed point. Such items as these would, I feel sure, be much appreciated by the tourists. While we were staying in the district we were being continually asked for information concerning the Blowhole and other such places.

BOTANICAL NOTES

By L. Rodway, Government Botanist

The plant life observable at Eaglehawk Neck, and the Peninsula in general, affords some interesting factors for the student. There is every indication of copious humidity; not only is the whole district, saving minor formations, such as sand-dunes and swamps, a continuous forest, but such forest essences as Sassafras and Fagus here grow down to sea level, whereas in the neighbourhood of Hobart they are not met with below an altitude of 1,000 feet. Lengthy exposure to a dry atmosphere is fatal to these two trees.

The Eucalypts are varied and intermixed. Swamp Gum produces extensive forests of fine trees in the gullies passing into Gumtop on the higher land, while Stringy Bark, Peppermint, and Blue Gum are everywhere to be met with. The very variable and interesting Ridsdon Gum makes its appearance on poor mudstone soil, in which it appears to revel. This tree responds in leaf form to the ground conditions in which it grows. In very dry, barren places the leaves are opposite and joined across the stem, but when ground moisture is generous it assumes the appearance of a broad-leaved Peppermint, except that the leaf venation is more diverging and netted, and the surface is everywhere somewhat glaucous. A broad-leaved Peppermint appears along the Taranna road. This is very distinct from Black or White Peppermint, or Ridsdon Gum (often known as Blue Peppermint). It was treated as a distinct

species by Hooker, and named by him *Eucalyptus nitida*. There is a very similar tree in the Lake District, but this, having the juvenile foliage of the Mountain Peppermint, is probably derived from that species. The various forms of Peppermints in Tasmania are very confusing, and require patient observation and cultivation to elucidate them.

Ferns always appeal to the young botanist, and the Peninsula is fairly strong in species. All three of our Tree-ferns appear here. Besides the common Old Man Fern, plenty of specimens of the Prickly Tree-fern are to be found. The stem is thick, and is commonly from six to twelve feet long; the stalk of the leaf is prickly. The fruit is very distinct. In the common Dicksonia the spore-cases are produced in clusters close to the margin. Each cluster is covered by a thick scale or indusium, which opens outwards. As it matures the margin of the leaf re-curves, so that the sorus of spore-cases appears as if contained in a double case. In the Prickly Tree-fern the sori are numerous, and placed on the back of the leaf. There is no indusium, and the cases are attached to a short, thick process. This fern is *Alsophila australis*. The Palm Tree Fern, *Cyathea cunninghamii*, is also found in gullies in the vicinity of the Neck. It is not often in fruit, but may be distinguished by the slender stem, which is often very tall. This fern is peculiar for bearing rudi-



"The Mercury" War News arrives.



The Biologist at Work.



The Searcher.

mentary pinnules at the base of the leaf-stalks right in the crown of the stem. This is an interesting feature, and is not common in present-day ferns, but is met with in fossils, and was once thought to be a parasitic growth. They are referred to as *Aphlebia*. The leaf-stalks of this are also prickly. The spore-cases are situated on the back of the pinnules, as in *Alsophila*, but when young are completely enclosed in a spherical membranous indusium. This ruptures at maturity, but remains as a cup containing the sorus.

Of the smaller ferns the genus *Lomaria* was represented by many species. *Lomaria* may always be recognised by the difference in shape between the barren and fertile leaves. Whether the leaf be divided or simple, the sterile leaves are broad and flat, while those bearing spores are everywhere contracted by a strong recurving of the margin. *Lomaria procera* was very common. It forms a handsome pot plant, and only its profusion prevents it being more cultivated. The rarest of our *Lomarias*, *Lomaria patersonii*, was met with in one gully. The leaf of this fern is about eight inches long, and quite simple, the fertile leaves looking very like pieces of cord. This is the only part of Southern Tasmania where this fern has been recorded.

There are three distinct shrubs, which grow on sand dunes, which are given the popular name of Boob-yalla, *Myoporum serratum*, *Acacia sophiae*, and *Correa alba*. They all occur intermixed at the neck. This reckless use of common names is one of the reasons why botanists find it so necessary when writing notes to include the scientific designations. It is quite time that an authentic list of popular names should be compiled, and taught in our schools.

Space will only permit one other group to be referred to here, namely, the orchids. Autumn is not the best time of year to search for these. Only two were met with, both of which were Green-helmets. One was the small *Pterostylis aphylla* and the other *Pterostylis obtusa*. The latter differed from the form growing on Mount Wellington by having a rosette of leaves at the base of the flower stem. In the spring the Neck is one of our richest hunting grounds for orchids. Mr. Clemes has sent us many of our rarest plants from here, namely, two of our obscure *Corysanthes*, *C. unguiculata* and *C. bicalcarata*. The sweet-scented *Caladenia* and the Black Orchid. The latter is pink and white when fresh, but turns quite black on drying.

ENTOMOLOGICAL NOTES

By G. H. Hardy, Tasmanian Museum, Hobart

The Entomology of Eaglehawk Neck has received much attention at various times, especially during January to March, 1913, amongst Hymenoptera by Mr. Rowland Turner, of the British Museum, and it would be scarcely surprising if the party procured nothing new on this occasion in the way of species. The extra late Easter is another factor against finding new species during the outing. Nevertheless, several important captures were made, some of which are entirely new; others as yet undescribed. Particulars are given under their respective orders.

Reviewing the collections as a whole, the entomological captures were certainly successful, perhaps more so than at any other of the Easter excursions I have attended, and the success is greatly owing to the energies of my co-worker, Mr. Clive Cole, to whom is credited the capture of the most difficult specimen to

secure, namely, the Dragonfly, which belongs to a genus well noted for its rarity and great speed of flight. In all, over 240 specimens were secured.

ORTHOPTERA.—2 specimens, one cockroach and one locust only were taken.

NEUROPTERA.—5 specimens. Two excellent captures were made in this order, one Dragonfly and one Coniopterygidae, both of which were taken by Mr. Cole.

About 19 species of Dragonflies are known from Tasmania. It is uncertain if the species taken on this occasion is new.

The Coniopterygidae, a family of minute insects having body and wings covered with a powdery efflorescence, has only recently been recorded from Australia. It was entirely unknown in Tasmania until I discovered it on Mt. Wellington last January. This new specimen makes a second time the family has been taken in Tasmania.



The Luncheon Hour.

Some of the Party.

Opposition Call
for Breakfast.

Two Osmylinae and one Psocid were also captured.

HYMENOPTERA.—Over one hundred specimens taken.

One typical specimen of Genus *Ophion* is the most noteworthy of the Ichneumons, and is the second only that I have taken in Tasmania (apparently only one species of this genus has been described from Australia). Many Bracons, five specimens of an Evanid, Ruby wasps, a few common Thynnids or flower-wasps, several bees, and various families of Fossiliferous wasps, formed the remainder of the captures.

Mr. Rowland Turner records taking specimens of *Aphelotoma tasmanica* at Eaglehawk Neck on dead eucalyptus logs in which old beetle holes were numerous, and, although of smaller size, the wasp bears considerable resemblance to ants of the Genus *Myrmecia* (the common jack-ant, or jack-jumper, is the one evidently referred to). The account goes on to state that when alarmed the wasp often picks up a fragment of dead stick or leaf, which it carries in its mandibles, thus increasing the resemblance to the ant. I took a specimen of this genus larger than the Jack-ant, and which also shows characteristic differences from *tasmanensis*, the only species recorded from Tasmania. This will probably prove a new species.

As the wasp has no popular name, and is of general interest, the name Jack-wasp might be adopted for the genus *Aphelotoma*, after its model, the Jack-ant.

Two ruby-wasps were obtained. The name "ruby-wasp" applied to Tasmanian specimens, is certainly a misnomer, for all I have yet taken are green, and apparently no red, or ruby, specimens occur in the island.

COLEOPTERA.—22 specimens, belonging to 9 families, were taken. Beetles afford but poor material to the hunter of

new species. They have received so much attention that there are apparently nothing but minute species left to be found in the island, together with very occasional prizes of large species to the most diligent hard worker.

LEPIDOPTERA.—The same remark can be made about butterflies and moths as that passed about beetles. Only one specimen was taken, belonging to the Hepialidae, or Swifts, more usually known in Australia as wood-moths.

DIPTERA.—103 specimens of flies were taken, amongst which there were many excellent specimens. Six specimens of a Robber-fly known as *Brachyrhopala nitidus*, which hitherto I have found very scarce, formed the largest catch, both in size and quality. A new Mock-bee (family Syrphidae) formed perhaps the most interesting species taken. It is an excellent imitation of one of our various red and black bees, such as the common *Exoneura bicolor*. I have often seen the bee enter beetle holes in fallen logs. The fly was taken when about to enter such a hole, so it appears at first sight as if the mock-bee had adapted the colouration for protective purposes. Tasmania is full of these apparent cases of mimicry, but owing to so little field investigation having been done to solve the problems of mimicry, and apparent mimicry, it is impossible to state definitely which are true cases of mimicry. The family Syrphidae contains numerous species of mock-bees and mock-wasps that do not mimic any particular wasp or bee, but in this case the mimic is remarkable even to the slightly yellowish tinge of the wings.

A species of parasitic fly of the rare family Hippoboscidae (parasitic on birds and animals) was taken on the wing, a rare occurrence for this family. The species is not determined.

HEMIPTERA.—Five specimens, belonging to two families, were taken.

GEOLOGICAL NOTES

By W. H. Clemes, B.A., B.Sc.

The geology of Eaglehawk Neck is extremely simple, and can be very briefly described. The main features of interest are connected with the permo-carboniferous mudstones, which are well developed along the coast. They present the usual bold vertical faces, reaching in parts to fully 1,000 ft. in height. The

bedding planes are nearly horizontal, or dip slightly to the south-east. The rock appears to have suffered very little deformation, though numerous faults are noticeable. The regular jointing has led to the formation of picturesque sculpturing, comparable to some ancient castle structure. The lower beds are the usual



Juvenile Cooks at Work.

gritty conglomerates, studded with boulders transported by ice action, and deposited in the mud of the ancient sea-floor. These basal beds are often regularly jointed, the joints being filled with ferruginous material. This is seen to the best advantage at the famous "tessellated pavement," where the cross jointing is most regular. On these basal beds is resting a curious band of coarse grit stone, which in places appears up on the sides of the cliffs, and at others is faulted down to sea level, and finally disappears beneath the sea between the Blowhole and the Arch. Numerous caves and archways have been cut into the cliffs, and outliers are frequent. One magnificent chimney rock, fully 160ft. in height, and balanced on a remarkably small base, is seen on the way to Waterfall Bay. The beds are filled with numerous fossils, the predominating types being *Spirifer convoluta*, *S. darwini*, *Productus brachythaeerus*, *Platyschisma ocula*, *Sanguinolites etheridgei*, and the various *Stenopora* and *Fenestella*, with *Protorctepora ampla*. On the north side of the bay the mudstones are conformably overlaid by Mesozoic sandstones of

the usual type. The surrounding hills are capped with later Mesozoic diabase of considerable thickness, jutting out in the south into a peak with steep columnar face. Other flows are noticeable to the south, ending in the Lantern Rocks and the reefs of Fortescue Bay, and appearing far out to sea in the ill-famed Hippolyte Rocks. This diabase intrusion is responsible for the cross-jointing of the basal beds mentioned before. The beds were heated excessively by the passage through them of the immense masses of diabase now crowning the hills, and on cooling joints roughly rectangular in cross-section appeared, the shape approximating to the usual jointing of the mudstones and the diabase, quite unlike the hexagonal jointing of the basalts of the Giant's Causeway.

Sand dunes of recent date fringe the shores of the bay, rising to a considerable height on the Neck itself. Some excellent aboriginal flint implements were found on the kitchen middens round the coast. The more recent geological phenomena are also represented by wide wave-cut terraces and raised beaches.

ORNITHOLOGICAL NOTES

By Clive E. Lord, Member Royal Australian Ornithologists' Union

The bird life observed during our few days' stay at Eaglehawk Neck did not present anything of outstanding interest. There were sufficient birds in the bush near by the camp to add life and melody to the other charms of Nature by which we were surrounded. The sharp notes of the green parrot (*Platycercus flaviventer*) in the gums, combined with the minor notes of the honeyeaters in the scrub and heath, were continually to be heard near the camp. Our Tasmanian nomenclature is rather behind the times in many places, owing to the changes wrought by time and man. Consequently, it was rather a surprise to some that one of the first birds noted was a wedge-tailed eagle (*U. audax*), which was gliding majestically over the slopes of Cash's Lookout. It is a great pity that this splendid specimen of bird life should be commonly known as eaglehawk. It is a true eagle in every respect, and a worthy rival of the famous golden eagle of Europe. The Tasmanian form, in common with the majority of species, is even larger than the mainland one. Our other eagle, the white-bellied sea eagle

(*H. leucogaster*), was seen searching for food along the shores of Monge (or Pirates') Bay. The only other Accipitri observed was the brown hawk (*H. berigora*).

Only one frogmonth, or "morepork" (*P. cuvieri*), was seen. The spotted owl (*N. maculata*) was often observed near the camp during the evening hours. It was also at night that the sharp "bark" of the penguins could be heard, and these agile swimmers (*E. minor*) were often noted during the day. Out to sea could be discerned several albatrosses (*Dio-medeidae*), but at too great a distance for their exact species to be ascertained. Several terns were seen; while the Pacific gull (*G. pacificus*) and the silver gull (*L. novaehollandiae*) were very common. The graceful form of the heron (*N. novaehollandiae*) was seen on the rocks, in sharp contrast to the outline of the black (*P. carbo*) and the white-breasted cormorant (*P. gooldi*), that could be seen near by. The gannet (*S. australis*) was constantly proving his skill as a diver in the water near the camp. It is pro-

bable that had we done any marine work other species would have been noted, as in previous years when carrying out dredging operations, we have noted a larger number of sea birds than we were enabled to do this year.

The homely robins (*P. leggi* and *P. phoenicea*) were always to be seen hopping round the camp. A little further afield the dusky robin (*A. vittata*) was noted, and, although the gullies at the back of the camp seemed ideal ground for the pink-breasted (*E. rodinogaster*), the writer failed to observe any specimens of this beautiful bird.

The grey-tailed whistler (*P. glauca*) was seen, and in close proximity the fan-tail (*R. diemenensis*) flitted from bough to bough. Of the *Acanthiza*, both the

yellow tail (*A. chrysorrhoa*) and brown tail (*A. diemenensis*) were common, while the brown scrub wren (*S. humilis*) was seen also. The blue wren (*M. longicaudus*) was a common sight in the clearings, while from the trees and scrubs the liquid notes of the honeyeaters were to be heard. Of the latter the black cap (*M. melanocephalus*), yellow throat (*P. flavigula*), crescent (*L. australasiana*), and New Holland (*M. novae-hollandiae*) species appeared to be the commonest forms. The raven or "crow" (*C. australis*) was often seen, and in lesser numbers the magpie (*G. organicum*). Among our last remembrances of the camp is the pleasure we derived from hearing the musical notes of the whistling shrike thrush (*C. sordidus*). This fine songster was heard to perfection on the morning of our departure.

Tasmanian
- Field Naturalists' Club -



GENERAL REPORT

BY CLIVE E. LORD
HON. SECRETARY

BOTANICAL NOTES

BY L. RODWAY, C.M.G.
GOVERNMENT BOTANIST

ZOOLOGICAL NOTES

BY PROFESSOR FLYNN & W. L. MAY

ENTOMOLOGICAL NOTES

BY G. H. HARDY
TASMANIAN MUSEUM

ORNITHOLOGICAL NOTES

BY CLIVE E. LORD

Easter Camp-out, 1917

- - to Wedge Bay, Tasmania - -



THE ARRIVAL.



CAMP IMPEDIMENTA.

LIST OF CAMP MEMBERS

Mr. W. Abbott.	Mr. E. D. Harrisson.
Miss O. Barnard.	Miss F. Lewis.
Miss M. Brownell.	Mrs. Lindon.
Mr. C. E. Cole.	Mr. C. E. Lord.
Mr. E. Cruickshank.	Mrs. C. E. Lord.
Miss E. Cruickshank.	Mr. W. L. May.
Miss L. Dean.	Mr. J. McCoy.
Mr. L. Dechaineux.	Mr. G. L. Propsting.
Mr. C. Duncombe.	Master S. Nettlefold.
Miss Dunbabbin.	Mr. L. Rodway.
Professor T. T. Flynn.	Miss A. Rowntree.
Master E. T. Flynn.	Miss F. Rowntree.
Miss O. Harris.	Mr. W. J. T. Steps.
Mr. G. H. Hardy.	Miss M. Wise.
Mr. C. Hedley.	

ASSISTANTS:

Mr. W. H. Woodward.
Mr. V. Molross.
Masters Woodward (2).



A PICNIC PARTY.



CRIPPS CREEK.



SOME OF THE CAMPERS.

Tasmanian Field Naturalists' Club

EASTER CAMP OUT, 1917

By Clive E. Lord, Hon. Secretary.

The Tasmanian Field Naturalists' Club held its 13th annual Easter camp during the recent holidays. The camping party numbered 33, which was not large when compared with some of the camps held before the war. It was none the less enjoyable, however, and as a social function a small camp is more enjoyable than a large one. The weather experienced during the camp was not of the best, but this was perhaps owing to the fact that the camp was the 13th Easter excursion organised by the club. There was only one day that was too rainy to allow excursions into the bush, and full advantage was taken of the remainder in order to explore the district and note objects of interest.

Last year an advance party left before the main body in order to prepare the camp, and so successful was the experiment that the same plan was adopted this year. On Wednesday morning, April 4, an advance party of nine members left Hobart by the s.s. Reemere, taking with them the whole of the camp impedimenta. A smooth passage was experienced, and the party reached the beach at the entrance to Wedge Bay shortly after noon. Boats were soon lowered away, and these, together with Mr. Wade's boats, conveyed all the luggage ashore. Bullock drays were waiting, and were loaded up, and the party set out for the camp site, which was about half-a-mile from the beach alongside a fine running creek. While the location of the various tents was being decided upon by the club officials the ladies of the party prepared an al fresco luncheon, which was partaken of under the shade of the spreading gums, and was much enjoyed by all. Immediately after lunch a start was made with the erection of the tents, and this work was carried on until darkness fell. After a welcome meal, some members of the advance party gathered round the camp fire and made plans for completing the camp the next day, while others went fishing in the bay, and were very successful.

On Thursday morning early rising was the order of the day, and the axes were swinging merrily soon after breakfast. A large shelter was erected for a dining tent, as well as sixteen smaller tents for the use of the members. The whole camp was in order by lunch time, and after doing justice to an excellent repast the members spent the afternoon in exploring the vicinity of the camp.

At the entrance to the Bay stands Wedge Island. This island was first recorded by Hayes, who called it Queen Island, but Scott, in 1824, gave it the name of Wedge, and this is now the name by which it is generally known. Passing the island the sheltered waters of the Bay are entered, and at the eastern end the township of Nubeena is situated. Its position is not discernable from the main bay, as its buildings are ranged along the shores of a small and almost land-locked sheet of water known as Parson's Bay, which really forms the head of Wedge Bay. On the south-western shores of the outer bay is a sheltered cove, where Mr. J. F. Wade has formed his home, while between this cove and a fine stretch of white sandy beach, Cripp's Creek enters the sea. It was along the banks of this creek at a distance of about half-a-mile from its mouth that the camp was pitched in an ideal locality. The ground rose sharply from the creek's bed, and then formed a fairly flat area of land, covered with bracken and scrub in places, and occasional gums and other giants of the forest. Around this arena were grouped sheltering hills. Mount Spaulding was close to the camp in a south-westerly direction, while in the opposite view the summit of Mount Clark rose clear above the surrounding hills.

After tea a large fire was set ablaze, and preparations made to welcome the main party. The majority of the campers left Hobart at 7 p.m. on Thursday evening, and reached the camp about 11 p.m., where they found supper awaiting them. After supper they were soon installed in their new abodes.



Friday morning proved to be rather windy, and the biologists and other interested members who were going dredging could be seen standing around and discussing what chance they had of doing any work off Cape Raoul. This topic was also the prevalent one during the morning meal, and the seagoing party were subjected to much free advice concerning certain items on the menu, and their effect upon people subject to mal-de-mer. Nothing daunted, however, a party of about a dozen set forth, and boarded the *Reemere*. The party included three ladies. Once away from the sheltering shores of the bay it was very soon apparent that a southerly gale was blowing, and that dredging would be very difficult. However, Captain Calvert did all that was possible to help, and too much praise cannot be given to him for the manner in which he handled his ship, and the spirit in which he entered into the whole proceedings. Several drags were made both with the dredge and trawl, but the amount of material obtained from the ocean was out of proportion to that yielded thereto, and soon after mid-day the boat left the vicinity of Cape Raoul and returned to the bay. After lunch another attempt was made at trawling in the bay, but owing to the gale, very little was secured.

During the time that the seagoing members had been rocking on the cradle of the deep, other parties had been making excursions to places of interest in the vicinity of the camp. One party went along the beach and visited the township of Nubeena, distant about three miles. Others went for excursions into the bush or along the coast, and so spent the day. The gale still continued on Friday evening, and as it commenced to rain heavily the idea of holding a camp fire concert had to be abandoned. Members sought the shelter of their tents, and prepared for a rainy night. That their preparations were needed was amply demonstrated as the night wore on. The gale increased in violence, and heavy rain fell. Those members who were not used to bush life, and had not camped out in a storm before, may have felt the ordeal rather trying, as the wind could be heard roaring in the trees, and every now and again a squall would sweep into the sheltered gully in which the camp was pitched, and generally attempt to remove the tents. Of the seventeen tents erected, however, only one suffered at all, and this was made good in a few minutes. It speaks well for the campers in general, and the ladies most particularly, that they took the weather as it came. Not a single complaint could be heard, and everyone entered into camp life with the right spirit, and made the best of the weather.

Some members of the camp were astir very early next day, and early morning tea served to those who required it. The weather improved but slightly, but this did not prevent the ardent dredgers having another attempt to snatch a few specimens from the ocean's floor. The sea, however, was far rougher than on the previous day, so that very little could be done. It was very unfortunate that the weather prevented much good being done as far as the dredging and trawling were concerned, especially as Mr. Charles Hedley, of the Australian Museum, had come over specially in order to take part in this particular branch of science. Mr. Hedley seems to be fated in this regard, as everyone of the three trips that he has had to Tasmania for this purpose has been rough. Owing to the bush being wet after the previous night's rain, a good many of the campers spent the day in the neighbourhood of the camp.

On Sunday several excursions were organised. One section took the boats and rowed across the bay in order to visit Roaring Beach, where there are some interesting aboriginal mounds. The party collected a number of flints, as well as numerous botanical specimens. Another section crossed over the country between Cripp's Creek and the sea, having lunch beside a running stream, which reaches the sea through a lagoon known as the Duck Hole. No ducks were seen, but the creek was simply alive with very large jollytails, and it was not long before the concerted efforts of the party were being applied in order to induce the juicy morsels to leave the creek and join the party on the banks. The efforts were very successful, and it was not long before enough fish had been obtained to give all the campers a plentiful supply for breakfast next morning. While the fishing party had been engaged in landing jollytails, another section of the camp had been exploring the gullies in the search for fungi, a branch of botany in which the leader of the botanical section, Mr. L. Rodway, C.M.G., is particularly interested. In the evening a large camp fire was prepared, around which all the campers gathered, and a very pleasant time was spent.

Monday morning found the camp astir early. It had been hoped to make an excursion to the top of Mt. Clark, but as the summit was obscured by fog, and it appeared as if more rain was to be expected, the excursion was declared off, and a trip organised down the coast instead. Several other trips were arranged, but the largest party set out across country to Duck-hole Bay, and then explored the coast southwards; Two Island Bay, The Chasms, and Three Beach Bay being visited en route. As the weather

improved as the day advanced, the coastal scenery was seen to the best advantage. When Three Beach Bay was reached, the day was drawing on, and it was decided to return to camp across country. The party took advantage of a dip in the hills which forms a gully, having a most euphonious local designation, and struck a bee-line back to camp, which was reached in time for tea. During the day other parties had been busy making excursions to other places in the district, or else fishing in the bay.

One excursion concerning which mention should be made was that made by the members of the biological section, who made a two-days' trip to Port Arthur, in order to study the shore life of the district. The party was accompanied by Mr. Hedley, who was anxious to obtain as many specimens of Tasmanian fish as possible, in order to take them back to Sydney with him. He was collecting these in order that Mr. Alan McCulloch, of the Australian Museum, might have some further material for his work on the fishes of Tasmania. It is understood that this work, when published, will be a most comprehensive one, and will include illustrations of all the known Tasmanian species. Mr. Hedley had a successful time at Port Arthur, as he was able to secure several interesting specimens, while the other members of the party spent their time studying the shore life of the district.

During the evenings in camp the usual camp fire socials were held, and as the camp was fortunate in possessing considerable musical talent, the average items contributed were of no little merit. They were all the more appreciated perhaps owing to the romantic nature of the concert hall. In the centre blazed a huge pile of logs, which cast a cheerful glow upon the surrounding ring of per-

formers and members of the audience, as well as adding warmth and comfort to the proceedings. Every now and again a log would fall in and send a shower of sparks aloft. These would draw one's attention to the tall majestic forms of the eucalypts, which formed the background of the arena, as they stood out silhouetted against the light of the Easter moon. To many lovers of the bush, the memory of such evenings, spent in music and song, amid such surroundings, will doubtless long remain. As usual, several camp songs were especially composed for the occasion, and these proved very popular items of the programme.

Tuesday morning found the campers reluctantly packing up their goods, and soon after breakfast the camp impedimenta was ready for the bullock waggons to take to the beach. The working bee soon had the tents down and folded up, and with many regrets we departed from the spot that had been our happy abode for the only too few days of the Easter holidays.

The whole party assembled on the beach, at the mouth of Crisp's Creek for lunch, after which a start was made for Mr. Wade's beach, where the camp gear was got ready to place on board the steamer, which arrived soon after 3 p.m.

During the journey to town the party assembled on the upper deck and passed the time pleasantly by singing the various songs that had become popular during the camp, and generally discussing the numerous incidents that are inseparable from a camping trip. Hobart was reached, after a very pleasant trip, at about 7.30 o'clock, and members were soon ashore, telling their friends of the events that occurred during the currency of the thirteenth Easter camp of the Tasmanian Field Naturalists' Club.

BOTANICAL NOTES

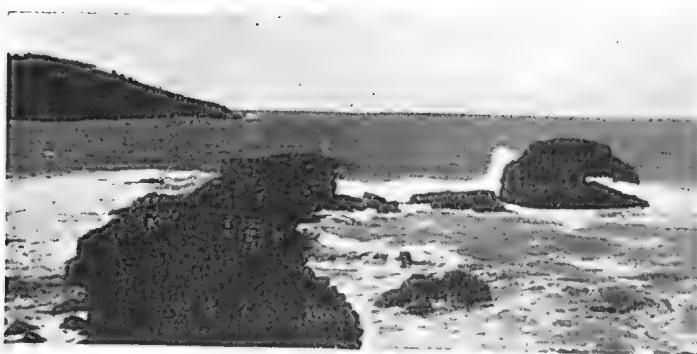
By L. Rodway, C.M.G.

Owing to the indifferent weather the botanists of the expedition did not make an organised attack upon the plants in the vicinity of Wedge Bay, and only explored the immediate locality and gullies. The vegetation was classifiable in three formations, open forest, freshwater swamps, and sand-dunes. The trees of the open forest were blue gum, white gum, broad-leaved peppermint, and stringy-bark. Under these was a fairly

open growth of shrubs, with dense association of yellow bottle brush in the wetter parts. No plant of unusual interest was observed, but the flowering period of many seemed early, just as it appeared last year at Eaglehawk Neck. Sweet-scented acacia and some orchids, which, as a rule, flower in July, were in full bloom. Of the orchids, *Acianthus exsertus*, *Pterostylis praecox*, and *P. concinna* were thus early. *Chiloglottis diphyllea*



OFF FOR THE DAY.



NEAR WEDGE ISLAND.

was out, but then it is a plant of independent spirit, and flowers when it pleases without regard to season. The two greenhoods mentioned above, *P. praecox* and *P. concinna*, grew near one another, and, as usual where this occurs, hybridisation was evident, as intermediate forms were observed.

Ferns were few and of the commonest sorts. Mosses, too, seemed to be reduced to a few hardy species, but fungi were varied and numerous. A large toadstool-formed plant, buff and scaly above, yellow and porous below, *Strobilomyces annaeceps*, was fairly numerous. It afforded interest, because when broken the flesh immediately turned a deep blue. The same thing occurs in some of our Boleti. It is due to the oxidising of certain chromogens present in the flesh. In a gully, whose name would lead one to assume that it yearned for close dependence on the human, we found numerous

specimens of an underground fungus quite distinct from any yet discovered, and which will probably be described in a paper to be submitted to the Royal Society.

The plants in the swamp were made up largely of bottlebrushes and sedge. Forked sundew and butterfly plant were there, also *Selaginella* and *Lindsaya*, but nothing that we do not always meet with in such localities. Desmids, filamentous Algae, and *Myxophyceae* were plentiful, but had to be neglected for want of time and tools.

The sand-dunes likewise yielded nothing but the commonest species, though some interest was induced by the finding of masses of *Nostoc*, many pieces of which were attacked by its particular parasitic, *Peziza*, with the result that the lichen genus, *Collema*, was procured.

ZOOLOGICAL REPORT

By Professor Flynn and W. L. May.

Mr. W. L. May reports that the trawling in Wedge Bay did not bring up anything of special interest, but a nice example of *Phasianella australis*, and *Verconella maxima* Tryon appeared, the latter being one of our largest gasteropods. At Port Arthur the continuance of stormy weather conditions prevented low tides, so that practically no shore collecting was possible. Some time was pleasantly and usefully spent in examining Mr. Mawle's local collection, and several possibly new species were noted, one a beautiful little pure white "Limpet" which is found living on rocks exposed to the heaviest surf. Among some tiny shells taken from weed brought up on fishermen's lines outside Port Arthur was a *Marginella*, which on careful examination at home proves to be *M. lubrica* Petterd, a "lost species"; the type was from five fathoms, off Brown's River. The type has disappeared, and no specimen has since come to light, so that the species was practically given up. However, it will now be possible to figure and generally rehabilitate it.

The two attempts at dredging off Cape Raoul brought up very small samples of the bottom, but what there was indicated that we were on a rich field, and with favourable weather conditions no doubt we should have made a fine haul. Two species of special interest were taken, 1st, *Murex licinus*, Hedley and Petterd. The type was taken in 300 fathoms, off Sydney, another in 100 fathoms, off Cape Pillar, one off Wine-glass Bay, and one has been picked up on Pirate Bay beach, so that this makes the fifth specimen so far collected. It would be probably better placed in *Trophon*, as it has a strong resemblance to some of the Antarctic members of that genus. Second, *Cyclostrema jaffaensis*, Verco. This is a remarkably distinct little shell, involute, pure white, and altogether well separate from its nearest known relatives, probably a new genus is indicated. The unique type was from off Cape Jaffa, South Australia. A specimen has been taken off Schouten Island, and believed to be the third specimen known. In addition to the above, a number of invertebrates

were found inhabiting the weed which closely covered the bottom of Wedge Bay in depths ranging from five to fifteen fathoms. An interesting collection of fishes were obtained, including a number of pipe fishes. It will be remembered that a new genus of these

fishes (*Histiogamphelus briggsi*) was found by the club at Wineglass Bay. Mention must be made of the fact that in the deeper waters a Pycnogonid of orange colour, as yet unnamed, was found in association with a hydrozoon.

ENTOMOLOGICAL REPORT

By G. H. Hardy, Assistant Curator, Tasmanian Museum.

The entomologists at the Field Naturalist camps are on the increase. This year their number was added to by the addition of a lady entomologist (Miss Olive Harris), who was collecting specimens for a nature study exhibit. Unfortunately, weather conditions prevented systematic collecting for now species, and very little special material was taken. One insect forms a conundrum, and we have been unable to decide whether it is a moth or caddisfly. Ultimately it will be found to be a caddisfly, I think, but the specimen is not in good condition nor sufficiently bad to enable the family to be determined with certainty without risk of further damage. The hind wings are more hairy than scaly, and this, allied with the more or less complex venation, would determine the specimen to be caddisfly, but the forewings are far more scaly than hairy, giving a moth-like look about the insect enough to deceive anyone.

One specimen of the blood-sucking lepidopterid was taken by Mr. Cole, thus confirming the report that this insect occurs in the Wedge Bay district. This species (*Spaniopsis tabaniformis*, White) was first taken at Wineglass Bay camp in 1914, when 13 specimens were taken. The specimen from Wedge Bay is the fourteenth known of the species.

The captures were not extensive in numbers, Mr. Cole's collection containing 61 specimens, whilst mine contained only 57. Miss Harris took 22, all of which had special interest from a nature study point of view. In this series a green and a brown grasshopper first attract attention, one living amongst green vegeta-

tion and the other on drier ground, each well fitted in colour for protective purposes. Another object for remark consists of a pair of long horned locusts, a species reported to have been especially prized amongst the aborigines of Tasmania as a delicacy for the palate; indeed, the look of the insect would convince us this report is founded upon truth, for the locust has a fat, succulent, and juicy appearance—enough to make the mouth water! This insect is wingless, and often seen under loose bark of trees, in which manner one was found. The second specimen, a female with a long sabre-like ovipositor, one-third the total length, was taken in one of the ladies' tents, the occupants of which called Miss Harris to the rescue, for somehow they failed to realise the windfall was a tasty morsel, and mistook the intruder to be a dangerous insect.

The click-beetle, which when placed upon its back jumps in the air; chafer beetles, with their fan-like antennæ; "Damoiselle" dragon flies, with their gauze-like wings; weevils, with their long snouts; paropsis, with their ladybird-like appearance; carabids or ground beetles; and a beautiful little hemipteron were none the less interesting, each forming an object of nature well worthy of study.

The mosquito met with was the banded-winged species, and was only too common round our tents. Although a large number were caught, only two were brought back, the others, captured in the usual unentomological manner, were rendered useless as specimens,

ORNITHOLOGICAL NOTES

By Clive E. Lord, Member of the Royal Australian Ornithologists' Union.

The bird life observed during the recent camp was more interesting than that observed for several Easters. Had the weather been brighter the species observed would doubtless have been greater in number, owing both to the fact that the inhabitants of the bird world would have been more in evidence, and also that excursions would have been organised to many more places in the district in addition to those that were visited. During the voyage down the various gulls and terns were noticed, but as these are practically cosmopolitan species no distinct record of them will be made. It is only proposed to deal with the birds noticed in the locality of the camp. As we were rowing ashore from the steamer several penguins (*E. minor*) were noticed sporting in the waters of the bay, while on the sand-spit at the entrance to Cripps Creek numbers of Pacific and silver gulls were to be seen. The Pacific gulls consisted of both young and old birds, the brown plumage of the young falling far below the black and white plumage of the adult birds. It takes three years before the brown plumage gives place to the adult colouration. The graceful form of the heron (*N. novaehollandiae*) was observed perched on a tree overhanging the creek, while a few grey teal (*N. gibberifrons*) were flushed from a reedy lagoon. Their flight aroused some cormorants, both the black (*P. carbo*) and the white-breasted (*P. gouldii*), and these wheeled overhead and then made for the sea, where the gannets (*S. australis*) were diving in great numbers. Along the ridge of the hills the king of the air, the wedge-tailed eagle (*U. audax*) gracefully glided, while across the lower country the flight of a brown hawk (*H. berigora*) was noticed.

During the evening the cry of "morepork" could be heard around the camp. For many years a discussion existed concerning which bird uttered this cry. The bird commonly called the "morepork," and known to ornithologists as the frog-month (*S. cuveri*), was held responsible for the cry by many people. Bird observers afterwards proved that the spotted owl (*N. maculata*) was the species responsible. My personal observations lead me to believe that both birds make the cry, and with one or more of the nocturnal birds it is a case of mimicry. One night during this camp Messrs. Hardy and Cole, hearing the cry "morepork" from the hills near the camp, imitated the bird, and induced him to leave the hill and come closer until he was in the trees above their tent. They state that the bird was certainly an owl and not a frog-

month, but that it was much larger than the *N. maculata*, and almost large enough to be the chestnut-faced owl (*S. castanops*). As they did not summon other observers or secure the bird for identification their experiment only enlarged the scope for discussion upon the nocturnal cry of "morepork" instead of lessening it.

The harsh cry of the black cockatoo was heard as a flock flew over the camp in the early morning. It might be mentioned that both this bird and the spined-tailed swift (*C. caudacuta*) are often spoken of as being foretellers of bad weather. We observed both the species, and also had some bad weather during our sojourn in camp.

The travelling companion of the swift, the welcome swallow (*H. neoxena*), was observed taking many trial flights, doubtless to prepare it for the long journey that lay ahead of it in the near future. Overhead in the gums the sharp note of the green parrot (*P. flaventris*) could be heard, as well as the plaintive "tweet" of the diamond birds.

Three species of robins were observed. The scarlet-breasted (*P. leggi*) appeared to be the commonest form, the others being the flame-breasted (*P. phoenicea*) and the dusky (*A. vittata*). The liquid notes of the grey-tailed whistler added to the charm of the locality, as well as the beautiful notes of the whistling shrike thrush (*C. selbi*). The fantail (*R. diemenensis*) progressed around the camp with its erratic flight, while both the yellow tail (*A. chrysorrhoa*) and the brown tail (*A. diemenensis*) were very common.

The blue wren (*M. longicaudus*), which has lately been designated the long-tailed wren warbler, was much in evidence, while from some of the tussocks the field wren (*C. fuliginosus*) was flushed.

The honeyeaters were very numerous. The strong bill (*M. validirostris*) and the black cap (*M. melanocephalus*) inhabited the eucalypts, while in the lower vegetation the spinebill (*A. dubius*), the yellow-throat (*P. flavigula*), the crescent (*L. australasiana*), the white-bearded (*M. novaehollandiae*) species were commonly to be seen. The noisy miner (*M. gouldii*) was, as usual, much in oral evidence, and to a lesser degree the yellow (*A. inauris*) and the brush wattle bird (*A. mellivora*). The raven (*C. australis*) was a common sight, while occasionally the black bill magpie (*S. fuliginosa*) was observed. The grey butcher bird (*C. cinereus*) was also seen, while our last memories of the camp are associated with the carols of several magpies (*G. organicum*), who organised a farewell concert on our behalf.



CAMP CARRIAGE AND PAIR.



THE DEPARTURE.



Tasmanian Field Naturalists' Club



GENERAL REPORT
BY CLIVE E. LORD, HON. SECRETARY

BOTANICAL NOTES
BY L. RODWAY, C.M.G., GOVERNMENT BOTANIST

GEOLOGICAL NOTES
BY W. H. CLEMES, B.A., B.Sc.

Easter Camp-Out, 1918
TO SAFETY COVE, PORT ARTHUR



On the Way Down.



On Scorpion Rock.



Entrance to Port Arthur.

LIST OF CAMP MEMBERS

MR. W. ABBOTT.	MR. E. D. HARRISSON.
MISS O. BARNARD.	MR. E. HERITAGE.
MISS M. BROWNELL.	MR. CLIVE LORD.
MR. F. B. CANE.	MRS. CLIVE LORD.
MR. W. H. CLEMES.	MRS. T. LYONS.
MRS. W. H. CLEMES.	MISS R. LYONS.
MISS J. CLEMES.	MR. L. RODWAY.
MR. E. CRUICKSHANK.	MISS A. ROWNTREE.
MR. K. DOUGLAS.	MISS F. ROWNTREE.
MR. L. DECHAINEUX.	MR. L. F. REYNOLDS.
MRS. L. DECHAINEUX.	MISS M. SAGASSAR.
MASTER DECHAINEUX.	MISS L. SAGASSAR.
MISS DECHAINEUX.	MR. W. R. SALE.
MR. A. EMMETT.	MR. H. F. SARGISON.
MR. D. GUILBERT.	MR. J. W. TARLETON.
MISS J. KNIGHT.	MR. W. E. TAYLOR.
MISS A. HARRISON.	MRS. W. E. TAYLOR.

ASSISTANTS:

W. H. WOODWARD AND 3 ASSISTANTS.



Very Early Morning Tea.



At Port Arthur.

Tasmanian Field Naturalists' Club

EASTER CAMP OUT

By Clive E. Lord; Hon. Secretary

The fourteenth Easter Camp of the Tasmanian Field Naturalists' Club was held this year at Safety Cove, Port Arthur. The number that attended was not, of course, as large as in pre-war days; in fact, the question was raised at one time whether the camps should be continued during the period of the war, but, after fully discussing it, the committee felt justified in continuing them. Since the inception of the camps in 1905 the localities visited, and the numbers that attended, have been as follow.—

- 1905.—Bream Creek; camping party, 9.
- 1906.—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907.—South Bruny; camping party, 27.
- 1908.—Maria Island, Soldiers' Point; camping party, 27.
- 1909.—Wineglass Bay (Freycinet Peninsula); camping party, 84.
- 1910.—Cole's Bay; camping party, 97.
- 1911.—Southport; camping party, 60.
- 1912.—Maria Island (Darlington); camping party, 69.
- 1913.—Safety Cove, Port Arthur; camping party, 80.
- 1914.—Wineglass Bay; camping party, 100.
- 1915.—Maria Island (Darlington); camping party, 36.
- 1916.—Eaglehawk Neck; camping party, 36.
- 1917.—Wedge Bay; camping party, 33.
- 1918.—Safety Cove, Port Arthur; camping party, 38.

For several years past it has been the custom for an advance party to precede the main party and prepare the camp. The same policy was adopted this year, and 17 members left Hobart by the s.s. Resinere on Wednesday morning, March 27, taking with them all the camp impedimenta. A beautiful trip was experienced down the river, but crossing Storm Bay the ocean swell made itself felt, and by the time Capo Raoul was reached a few members were beginning to think about the sensation sometimes referred to as mal-de-mer. A short run across Maington Bay, and the storm-lashed cliffs of Brown Mountain, rising sheer from the sea, were soon abeam, and the wheel swung round in order to enter the port. After rounding Brown Mountain the beautiful sandy strand of Half Moon Bay was passed. Another point rounded, and the "Quiet Corner" in Safety Cove came into view soon after 2 p.m. The genial skipper (Captain Calvert) soon had his boats lowered, and "all for the shore" was passed along. The unloading of the camp gear took some time, and when the menfolk of the party had finished their labours in this direction they were gratified to find that the ladies of the party had the billy boiling, and an alfresco meal prepared. Meanwhile, an inspection of the locality was made, and the camp laid out. A start was immediately made to erect a portion of the tents, and good progress had been made by the time "Tea-o!" was announced.

This was partaken of under some spreading gums and beside a stream of fresh water. Behind this rose a small hill, surmounted by typical Australian foliage, through which the gleams of the Easter moon soon appeared. By moonlight the locality, which was to



The Cup That Cheers.

At Caimarvon.



Creek at Safety Cove.

be our home for the next few days, looked even more picturesque, if possible, than by daylight. The long curve of silver sand stretching like a bow from Point Puer, a mile or so away, terminated in a rocky knoll. Towards the south end of the beach the sand dunes were slightly raised. Then came a sandy hollow, and the hill rose sharply. It was in the dip between the sand dunes and the hill that the camp was pitched, midst bracken below and spreading eucalypt above. As we rested round the camp fire amidst such scenes of beauty, our thoughts naturally turned to the days of years ago, when Port Arthur was noted as a convict settlement. The historians of our party were soon busy explaining how, when the settlement was in the height of its glory—or degradation—there were no less than 7,000 prisoners employed on the Peninsula. At the northern end of Safety Cove, Point Puer juts far into the bay. It was here that the boy convicts were imprisoned, and it is stated that on occasions there were as many as 800 boys, whose ages did not exceed 18 years, imprisoned. This portion of the settlement was not used after 1857, so there is not much to be seen now of the spacious buildings which were once erected there. Off the end of Point Puer lies the isle known as Dead Island. It was here that hundreds of the convicts found their final resting-place, as it was used as the cemetery of the settlement. Just to the north of Point Puer there is Opossum Bay, and it was on the shores of a picturesque cove in this bay that the main convict settlement was situated. This beautiful spot was selected for the settlement by Governor Arthur in the year 1830, and a start was immediately made to prepare for the future. How rapidly the settlement grew can be judged from the fact that when the famous Dr. J. O'Hara Booth had charge of the station, the number of convicts under his charge was over 7,000. These, of course, were not all stationed at Port Arthur, but were spread over the other settlements on the Peninsula. Port Arthur, however, was the main station, and the majority of the convicts were stationed there.

This period of Tasmania's history, and the fact that we were camped near the site where, not so many years ago, thousands of convicts had been at work, and the result of all their labour was

fast going into decay, gave us food for thought as we "swapped yarns" round our camp fire on this glorious Easter evening. Reverting to the present, we turned our attention to the country to the south of the camp, and those of our party who had not previously visited the locality were told of the charms of the Remarkable Cave, which is situated on the cliffs of the South Coast, of the views from the top of Brown Mountain, of the charms of Half Moon Bay, and of the other natural beauties of this district. Thinking of the pleasures in store, we sought our tents early, and were soon lulled to sleep by the soft beat of the surge on the beach. Thursday morning saw several members courting Neptune in the bay, after which breakfast, and then to work. The camp "roads" were set out by an authorised surveyor, and the various claims located. By lunch-time most of the tents were pitched. After lunch a large dining-tent was erected, and various improvements made to the surroundings of the camp, and by nightfall the camp was quite ready to receive the remainder of the party, which would bring its numerical strength up to 38. The main party left town at 7 p.m. on Thursday evening, and arrived at the camp in the early hours of Good Friday morning. After a refreshing "supper" tents were soon sought, and quietness reigned supreme.

The camp woke to the calls of the parrots among the overshadowing gums, and it was not long before the melodious sound of the breakfast gong showed that Chef Woodward and his assistants had been astir early. At breakfast, plans were made for the day, the majority of the campers resolving to visit the Blowhole and the Remarkable Cave. Accordingly, lunches were procured, and a merry party started off for the cave, while other campers made up parties to visit other portions of the country. The main party visited the Blowhole first. This is situated on the coast, between Brown Mountain and the Remarkable Cave. It is simply a large split in the rocky formation of the coast, the split forming a hole, at the bottom of which the sea, a couple of hundred feet below, roars in from the ocean, evidently by a tunnel. The Blowhole, in its present state, is distinctly dangerous. One does not notice this yawning cavity until close to its edge, and there is not the slightest

Breakfast.

A Group of Fair Campers.



protection against falling down it. To the westward of the Blowhole, the Remarkable Cave is situated. The Tourist Department has recently opened up the track to this cave, and it is easily accessible. Following along the track one comes to a bowl-shaped opening in the earth, down the sides of which a ladder has been provided. Descending the ladder, you are able to examine the cave, but the tide must be low if you wish to do so thoroughly. At low tide you can walk right through to the ocean beach. At high tide even the sandy floor of the opening is awash. At the time of our visit the tide was fairly low, and we were able to explore the cave thoroughly. After descending the ladder, we found ourselves in a large, well-shaped hole, and in the shore side of this the opening of the Remarkable Cave immediately attracted attention. As we entered the cave, we found that about half-way to the sea it forked, and became Y-shaped, two distinct tunnels leading to the beach. We were able to go right through both of these. The best part of the day was spent in the vicinity of the cave, and camp was reached on return about 5 p.m.

On Saturday most of the campers went to Carnarvon, three miles away, in order to inspect the old convict buildings there. Others arranged collecting excursions, or spent the day sketching some of the charming scenery by which we were surrounded. The settlement of Port Arthur has been so much written about that there is no need for further mention here, except this: To my mind the best way to see the settlement is to visit Scorpion Rock, the knoll immediately behind the old church. From here the old buildings are set out as a map. Looking at it, as we did on this beautiful autumn day, one could not but recall the past, and regret to think that such a beautiful spot, as Carnarvon appears from Scorpion Rock, or any other viewpoint, should be associated with such a very dark page in history. The next day a large party visited Brown Mountain, and amused themselves while there by dropping stones over the vertical cliffs straight into the water many hundreds of feet below. The view from Brown Mountain is very pretty, embracing the coast from The Friars to Tasman Island, while Port Arthur was set out at our feet, backed by range

upon range of mountains, extending into the northern distance. A return to camp was made by way of Half Moon Bay, and some exciting scenes were witnessed in the way of "go as you please" races down the immense sand hills that line the back of this beach. Here another party from the camp were met with, busy photographing the shore life in the rock pools at the end of the beach, while on a jutting point the camp artist could be observed as busily engaged in plying his brush as his confrere the cartoonist had been shortly before with his pencil. Monday was spent in further excursions to places of interest, each party telling the others of places that should not be missed, and all endeavouring to see as much as possible in the short time that remained at our disposal.

Mention should be made of the evenings in camp. We were fortunate in possessing considerable musical talent, and in the evenings it was usual to build a large camp fire, around which the whole camp would gather. In addition to songs and choruses, there were also two zonophones to supply additional music when required. One evening Mr. J. W. Tarleton told of his experiences with the Kelly gang of bushrangers, when he was a bank manager on the mainland. These camp fire socials were much enjoyed, and greatly assisted the success of the camp from a social point of view. Mention must also be made of the fancy dress dinner party held on the last evening in camp. Although the event was quite an impromptu one, it was very successful, and some splendid decorative effects were seen, from Turkish ladies to Maoris, and from wild men of the woods to a bride and bridegroom, the latter's top hat, by the way, being made from a cardboard rim and an inverted "billy."

Then there was the fishing. We were fortunate in having an expert among the campers, who so played his nets among the kelp that fringed the shore that trumpeter could nearly always be had for breakfast. But, "tempus fugit," and Tuesday morning arrived all too soon. Some of the members who had to be in town early were up at daylight, and walked to Port Arthur, from whence a motor-car whisked them back to Hobart. The rest set to work and struck camp, and when most of the work had been done the majority, de-



At Carnarvon.



Coast Scene, with Brown Mountain in the Distance.

terminated to have another day's picnic, set off to walk across to Wedge Bay, it being arranged that the steamer would call there for them. A few members stayed around the camp, and the s.s. Reemere arrived early in the afternoon, and the camp gear was soon placed on board. We bade farewell to Mr. and Mrs. R. M. Tanner, upon whose property we had been camped, and soon were "all aboard." With regret, we steamed away from the shores of Safety Cove, and fond memories of

the pleasant days we spent there will linger for a long time to come.

A good trip, despite a slight roll, was experienced to Wedge Bay, where the remainder of the party greeted us. Wedge Bay was left as darkness was falling, and the whole company assembled on the upper deck, where the camp songs were once again called into commission. To the tune of "Auld Lang Syne" we steamed into the Hobart wharf at 10 p.m.

BOTANICAL NOTES

By L. Rodway, C.M.G., Government Botanist

The study of plant life received a considerable stimulus when, but a few years ago, it was directed into a comparatively new channel. Something almost amounting to an inspiration seized upon the minds of botanists, and awakened them to the fact that though the study of botany had been pushed almost to exhaustion along most lines, yet there was one, and that of the utmost importance, which had been almost completely neglected. This line of study is that of the response of plants to their environment, and has received the name of ecology. Ecology is something more than a branch of physiology; it is even something more than a single science. It contains three clearly distinguished lines of research, namely:—

Plant Geography, which treats of the distribution of plants upon the globe, deals with migration, the limiting effect of climatic factors, and influence of general conditions.

Plant Society, which deals with plant distribution under local conditions; why certain plants associate in similar localities; why one area supports woodland, another heath; why a distinctive vegetation always appears on sand dunes, on shores, on swamps, and in water.

Plant Conformity, which treats of changes of form in individual plants due to differences in local conditions, such as copious or sparse rainfall, constitution of soil, temperature, intensity and incidence of light, and effects produced by prevailing winds.

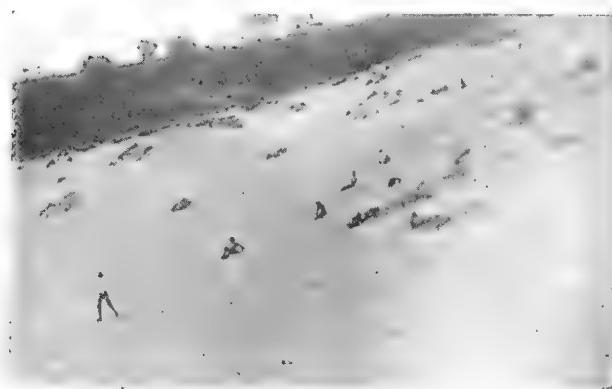
Besides being a great place for general plant hunting, Safety Cove, with its surroundings, is an ideal place for the study of this new science of ecology. Under the first section we may inquire why the prevailing trees are eucalypts, and where did they come from? Why are there no pines nor palms? Also the Hakeas. There are two or three species present here. The genus is a very old one. Where did it originate, and how has it migrated? Why has it died out in some places and spread in others?

Under Plant Society we may inquire why, on the flat, and immediately about the camp, there were trees, and why, from camp to the caves, it was mostly heath? Certain plants only live on dunes, others on shores, others, again, in marshes. Why is this? Plants of no relationship will often, under similar conditions, assume similar shape. Thus in water, near the camp, a member of the Gentian family had leaves exactly like those of a water lily.

Plant conformity is very interesting. Many plants growing in salt locality acquire a fleshy structure. This was illustrated in some herbs along Point Puer, also Half Moon Bay. The different structure of leaves of the same species grown in shade and bright light afforded numerous examples. Perhaps a more interesting response to local conditions was the dwarfing and crooked growth of shrubs and trees on Brown Mountain, where the constant southerly winds have full play.



On Scorpion Rock.
The Cairn on Brown Mountain.



Land Slides.

GEOLOGICAL NOTES

By W. H. CLEMES, B.A., B.Sc.

The rocks in the vicinity of Port Arthur are more interesting from a stratiographical rather than from a paleontological point of view, and are worthy of a more extended examination than was possible in the limited time at our disposal.

The oldest rocks in the vicinity belong to the lower Permo-Carboniferous series, and comprise the usual gritty marine mudstones, so common in the south-east of our island. They occur in nearly horizontal beds at Point Puer, and probably underlie the sandstones of the hills to the west of the settlement. The lower beds are barren argillaceous sandstones, with iron-filled joints. Above occur the mudstones, and more or less pure limestones, containing the commoner Permo-Carboniferous marine fauna. In the middle of the beach at Half Moon Bay is an outcrop of highly metamorphic mudstone, nodular in structure, and weathered into curious and fantastic shapes.

The hills to the west of Safety Cove are formed of Mesozoic sandstone of the usual type, resting conformably on the mudstones mentioned above. Quite one thousand feet of this rock is visible, barren of all fossil remains, and approximating in age and texture to the Knocklofty series. I understand that at Long Bay traces of shale are to be found, containing *Phyllotheca* and *Zeugophyllites*, and merging into the coal seams of the Tasman Peninsula Basin. The most interesting structural features of the neighbourhood are due to the intrusion of diabase in the later Mesozoic. This igneous rock-material has forced its way up into and between the beds of the other strata, forming the whole of the mountains to the east of the bay, and capping the mountains to the west. The flatness of the plains is due to the moulding of the overlying strata, between the layers of which it has forced its way. Most of the overlying sedimentary rock has been worn away; only one small portion can be seen between Arthur's Peak and the Pillar. The rock on the whole is massive in type, as at Brown Mountain, but at the edge of the sill fine examples of columnar structure are

noticeable, formed by the more rapid rate of cooling at that point. The columns of the Raoul and the Pillar are familiar to all, and the same structure may be seen right round the outer fringes of the coast, the massive type only being found further in. To the north of Cape Raoul, the diabase can be seen resting, conformably on the earlier sandstones. The deep Port Arthur bay has been formed along the junction between the diabase and the mudstones and sandstones. When the diabase was forced into the older strata at a temperature of about 2,000 deg. F., it produced great changes in the rocks with which it came into contact. It was responsible for the metamorphism in the mudstones at Half-Moon Bay, and numerous examples of its action on the sandstones could be seen, the best being near to the Remarkable Cave, Mr. Arndell Lewis has described it before, and I cannot do better than quote his words:—"In one place the following structure can be easily seen. There is a small cliff of sandstones, with conglomerates on the top, underneath which can be seen the first effects of the enormous heating from below. For a foot or so, the change is hardly noticeable, and is confined to a hardening of the rock, but after that it changes with increasing rapidity. Soon the rock becomes a dull brown, and very much harder, and large specks of mica appear. Very soon the rock is so hard as to be unaffected by a hammer blow, but still preserves its stratified form. Up through cracks has welled thin sheets of diabase, as miniature dykes, telling of the sill not far below. Great masses of entirely changed matter are seen mixed up with the other rock, which soon loses all resemblance to any stratified rock, and becomes purely a mass of quartzite. The whole rock is now changed in colour. Some of it is a pale green, some blue, other parts are a shining black; some again are like polished marble, and all of it is much harder than the ordinary diabase which comes just below it." Considerable deformation has also taken place near the intrusion. Many caves have been hollowed out in the diabase by the action of the waves, the best known



Near the Remarkable Cave.

being the Remarkable Cave and the blowholes on Brown Mountain and at Half-Moon Bay.

Coming to more recent times, nothing of interest is to be seen, except, perhaps, the immense sand dunes at Half-

Moon Bay, formed from the debris of the surrounding sandstone cliffs, aided, perhaps, by the material brought by the westerly drift. Few shell mounds were to be seen, telling of unsuitable conditions for aboriginal life.



In the Remarkable Cave.



"Beside the Billabong."

18/3378 Mercury, Hobart



∴ Tasmanian ∴
Field Naturalists' Club



EASTER CAMP

1919

TO EAGLEHAWK NECK
TASMANIA



GENERAL REPORT

BY CLIVE E. LORD, Hon. Secretary

BOTANICAL NOTES

BY L. RODWAY, C.M.G., Government Botanist

GEOLOGICAL NOTES

BY W. H. CLEMES, B.A., B.Sc.

ORNITHOLOGICAL NOTES

BY CLIVE E. LORD, R.A.O.U.

SOME OF THE MEMBERS WHO ATTENDED THE CAMP.

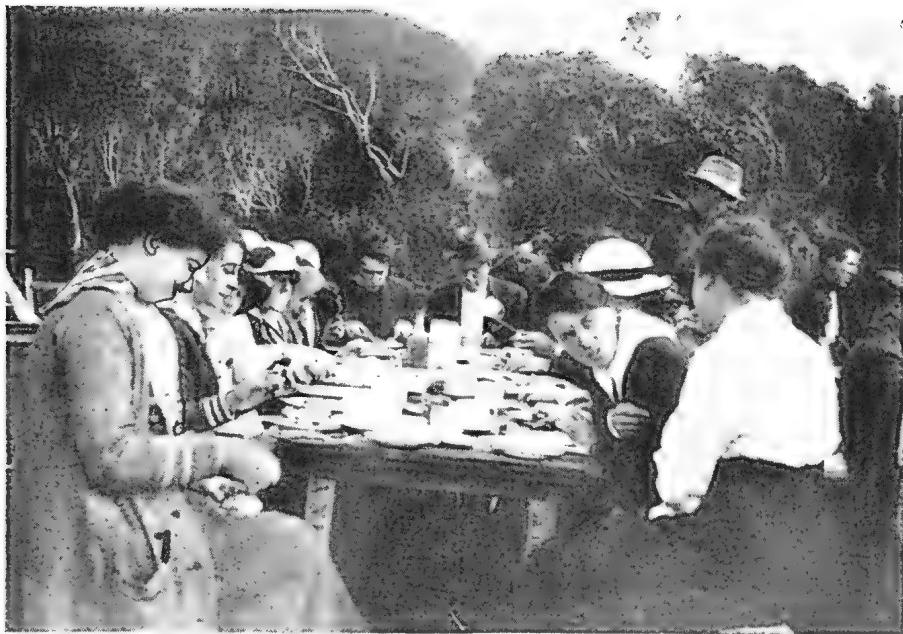


LIST OF CAMP MEMBERS

MR. W. ABBOTT.	MR. C. LORD.
MISS O. BARNARD.	MISS A. MONTGOMERY.
MISS B. BAYLY.	MISS J. PETERSON
MISS M. BAYLY.	MISS E. POCOCK.
MISS M. BROWNELL.	MRS. J. REID.
MR. J. CATO.	MISS A. REID.
MR. C. CHEPMELL.	MR. L. REVILL.
MR. S. CRANE.	MR. L. F. REYNOLDS.
MR. H. CRAIKE.	MISS A. ROWNTREE.
MR. E. CRUICKSHANK.	MISS F. ROWNTREE.
MR. T. DAVERN.	MR. L. RODWAY.
MISS A. DIFFORD.	MISS M. SAGASSAR.
MR. A. E. FAUDRY.	MISS E. SAGASSAR.
MR. H. GREUBER.	MR. G. O. SMITH.
MISS K. HAY.	MR. R. STOPS.
MR. E. HERITAGE.	MR. WALTER TAYLOR.
MR. F. HEYWARD.	MRS. WALTER TAYLOR.
MISS J. KNIGHT.	MR. J. WALFORD.

ASSISTANTS

MR. W. WOODWARD.
MR. V. MOLROSS.
MR. E. WOODWARD.



AT BREAKFAST.



THE PHOTOGRAPHER "SNAPPED."

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1919

By Clive E. Lord, Hon. Secretary

Since the formation of the Tasmanian Field Naturalists' Club in 1904, excursions into that interesting realm of nature, "the bush," have always been prominent features of the club's activities. As the club grew, the seashore and later the floor of the ocean itself were added to the collecting grounds of the members. In pre-war days we used to charter a large coastal steamer, and sail away to the eastward. The camp would be pitched amid the pine fringed granite coasts of Freycinet Peninsula, or some such beauty spot, and our vessel used for making excursions, or for the purpose of dredging specimens from Neptune's garden. In 1914 one hundred members formed the camp at Wineglass Bay, but since that time the war cloud has overshadowed all things. It was considered advisable to keep the club's activities in working order, however, and for the past few years smaller camps have been held at places nearer home. This year it was resolved to visit Eaglehawk Neck, which had been previously visited in 1916, and when all arrangements were complete, it was found that the camping party would number forty members. As in previous years, an advance party left in order to prepare the camp for the main body. Accordingly on Wednesday morning, April 16, a few members in charge of all the camp impedimenta left Hobart by the s.s. Cartela, and arrived at Eaglehawk Neck at lunch time. Here the numerous packages and articles indispensable to a camp were loaded on to waggons and conveyed to the camp site. Owing to the kindness of Mr. Clemes, this was on his property, Pendennis. An open clearing surrounded by scrub and tall eucalypts was the chosen spot, and as it was in close proximity to the beach, and a running creek supplied the camp with water, it was an almost ideal base upon which to found a camp. A start was immediately made to erect the tents, and a proportion of our labours was accomplished when darkness fell, and we assembled

around the camp fire to enjoy a well earned meal. Next morning the autumn sun shone brightly, and after courting Neptune we continued the work of constructing the miniature village, and this took most of the day.

Eaglehawk Neck has an interesting history. As is well known, it is chiefly noted for being the only gateway to Governor Arthur's "Natural Penitentiary" of Tasmania's Peninsula. Its connection with the convict era will ever remain, but apart from this it has historical surroundings of earlier date, and these, together with the natural wonders of Tasmania's Arch, the Tesselated Pavement, and the Blowhole, will forever entwine the charm of romance with the other beauties of this locality. Along this rugged (except for exceptional intervals, such as Eaglehawk Neck) section of the coast, Tasman first sailed his ships in November, 1642, and made known to the world the existence of a portion of Terra Australis. His ships were anchored a few miles to the north of the Neck. Here, too, in 1772, came the ill-fated Marion du Fresne, and it was on this voyage that the Tasmanian aborigines were first met with, and, alas, some killed. The third European, as far as our present day records are aware, and the first British navigator to sail along this section, was Captain Furneaux, in 1773, and in 1777 Captain Cook himself sailed by. The next visitor was Captain Bligh, in the Bounty, in 1788, during the course of his ill-fated expedition. He visited the island again in 1792, when on a second and more successful expedition in quest of the bread fruit trees of Tahiti. In 1799 came Captain Cox, in the Mercury, and it was he who drew up the first chart of Maria Island. The exploring work of the French Admiral, Bruny D'Entrecasteaux, in 1792, and again in 1793, did much to advance the knowledge of Tasmanian geography. Commodore Sir John Hayes, who visited the island in 1793, spent most of his time in the Derwent estuary. It was not until the summer



3

THE DINING TENT.



A PICNIC PARTY.

of 1798-99 that Tasmania, or as it was then known, Van Diemen's Land, was first circumnavigated by Bass and Flinders in their 25-ton sloop, the Norfolk. As far as the East Coast is concerned, the first detailed surveys were carried out by the French during Baudin's expedition in 1802. It was owing to the attention being paid to this portion of the great Southern Continent by the French which caused the first settlement of the English on the Derwent on September 7, 1803. From the foregoing it will be seen that the south-eastern portion of Tasmania's coast line has an interesting history, and when we pitched our camp amidst the eucalypts, on a knoll overlooking a long section of the coast, it is not to be wondered at that we let our thoughts revert to days gone by.

We dwelt in the present, however, and the arrival of the main party at 11 o'clock on Thursday evening gave an animated appearance to the camp. From now onward the camp was in full swing. We were particularly fortunate as regards the weather. Each day was a splendid example of Tasmania's autumn at its best. A grey dawn gave place to radiant sunshine, which gilded the foreshore, and caused the breaking rollers to merge into millions of glittering gems of light. Neptune's element called forth the campers, and the majority participated in aquatic evolutions until the sound of the breakfast gong echoed through the forest. Before long a general assembly took place under the large dining tent, and full justice was done to the first meal of the day. Plans would then be made for the excursions, and soon various parties, carrying well-filled kit bags, containing the midday meal, would be seen leaving the camp. Some would be bent upon collecting natural history specimens, others on securing photographs, while many went forth in the full enjoyment of the open air life to enjoy a day amid the beauties of nature. All places were visited. Some preferred the surge of the sea and the towering storm cleft cliffs, some the wooded hillsides and the rocky mountain crags, while others wended their way to the romantic fern gullies; where the beeches and dickonias met overhead and formed an emerald dome.

To the north of the bay there was the Tessellated Pavement, Fitzroy Glen, and other places well worthy of visiting. To the south, within a mile or so of the camp, were the Blowhole, Tasman's Arch, the Devil's Kitchen, and Fossil Island; while further south was Waterfall Bay and The Pinnacle. Behind the camp rose Cash's Lookout, and it was from here that many of the campers used to spend pleasant hours in observ-

ing the panorama spread at the base of the hill, and rolling away into the dim distance until the blue tones of the sea and sky merged into one, or the grey shades of the inland mountains were absorbed by the clouds. As the campers boiled their billies among such surroundings as these, it is little to be wondered at that they should desire to know something of the early history of the locality, and that such should be asked for and given in impromptu talks by those who chanced to be conversant with it.

With clear autumn skies and scarcely a ripple on the water for the whole period of the camp, it was only natural that every advantage should be taken of the beautiful weather and excursions made to the numerous places of interest. Here all sections found much to admire, while the more scientific members pursued their botanical or zoological studies, and at the same time made holiday in true camping spirit. The botanical section, under the leadership of Mr. Rodway, had a busy time. As regards the zoology, we were unable to undertake any marine dredging work this year, owing to the lack of a suitable boat. It is also to be regretted that the native mammalian fauna of Tasmania cannot be studied without long excursions being made into the less settled parts of the bush. The present indiscriminate destruction of our native fauna is a matter that demands immediate attention if we are to preserve certain species from extinction. One day during the camp a number of us spent digging in the sandhills in an endeavour to locate some more aboriginal remains, as a few months ago I had removed portions of about a score of skeletons from this locality to the Tasmanian Museum (as reported in the proceedings of the Royal Society of Tasmania for 1918). We now long for relics of the extinct Tasmania aborigines; and they have a high scientific value. But we do not take heed of the teaching of history. Unless active steps are taken, many highly interesting forms of our native fauna will soon be as extinct as the Tasmanian aboriginal and the Tasmanian emu.

Better protection should also be afforded our natural beauty spots. The wonders of the Blowhole and Tasman's Arch attract thousands of tourists to this locality, and the native flora around these places should be preserved. Instead of this, we found the country cleared by fire. A pretty patch of native trees near the Blowhole was burnt out on Easter Sunday, and was evidently wilfully set on fire. As well as better protection being afforded to safeguard the natural features, a little expendi-



AT CASH'S LOOK-OUT.



THE RISING TIDE.

ture in cutting tracks to such places as Cash's Lookout would well repay the small outlay. Since our last visit considerable improvements have been carried out by the Scenery Preservation Board, but the district is worthy of even more being done...

And as each day passed and the autumn sun sank behind the hills, the various parties would return. The open air life was responsible for the anxious glances cast towards the dining tent, where the acetylene flares would soon be burning brightly and the campers exchanging accounts of the day's outings.

As the Easter moon rose from the sea and illuminated the white shapes of the tents among the trees, a huge camp fire would be set alight, and the forests would ring with the melody of the camp choruses and songs. To the musical members of the party we were indebted very considerably, for it is to them that our thanks must be accord-

ed for many pleasant hours spent around the camp fire. The musical selections would be interspersed with nature talks and other topics. After supper the company would gradually diminish, and the members retire to their tents, to be lulled to sleep by the rhythmic beat of the surge upon the shore.

And so the time passed all too quickly, and many were the regrets expressed when Tuesday afternoon arrived, and it was time to leave. All set to work with a will, however, and the miniature village and its occupants disappeared as though by a magician's wand. All were aboard the s.s. Cartela by 4 o'clock, and a start made for home. After calling at several ports, Hobart was reached at 10.30, after a most pleasant trip. The calm and enjoyable return voyage was a fitting termination to the pleasant days that we had spent during the recent camp, and in this manner the fifteenth annual camp of the Field Naturalists' Club came to an end.

BOTANICAL NOTES

By L. Rodway, C.M.G., Government Botanist

This is the second time within the last few years that the F.N.C. has made its Easter camp in the vicinity of Eaglehawk Neck, the former occasion being in April, 1916. In the report of that event may be found some reference to the eucalypts, orchids, ferns, and dune-flora found there. One of the most interesting groups of flowering plants we have in Tasmania is that known as the Protea family. This is a large, but perfectly natural, family, and was given the name Protea on account of the great diversity of forms of the plants included in it. Proteas are common throughout the Southern hemisphere, and they spread to tropical Asia and up through the countries bordering on the Pacific, as far north as Japan. There is one feature common to all members of the family, namely, a reduced or leathery condition of the foliage, with very sunken pores. This structure is evidently an adaptation to a dry climate where the reduction of evaporation is a prime necessity.

Waratah is a typical proteaceous plant, and to understand the structure of its flower is to recognise all members of the family. The flowers may be in loose or dense clusters; they may be single or in dense heads, but if we learn the structure of one proteaceous flower

we shall be able to recognise any member of the group, for in Tasmania no other flower is formed like it. The flower possesses but one floral envelope, and this is split into four sections. Each section of this perianth bears a stamen in a depression near its tip. In the middle of the flower is a single linear body, very like the same organs in a pea-flower, which will develop into the fruit. In the vicinity of our camp there were six members of the family. Waratah, with its crimson flowers, needs no further description. There were two species of Hakea, *H. pugioniformis* was common. It was rigid and prickly, and would form an excellent hedge; the fruit is shaped somewhat like a dagger. The other Hakea occurred at the top of Cash's Lookout. It had a small sigmoid fruit. This to a vivid imagination has somewhat the appearance of the human larynx, on which it has received the inappropriate name of *H. epiglottis*. The foliage of these Hakeas is reduced to linear spines on account of which they have been sometimes mistaken for pines.

Another common protéa was a little shrub with rather fern-like leaves. It is commonly called Fairy-fern, which is unfortunate, as it is not at all related to the ferns. The fruit, when open, is

THE TESSELLATED PAVEMENT.



very like a guitar, and the name guitar plant is much more suitable. The flowers are in loose clusters, creamy white, and in structure exactly like the flowers of waratah. The scientific name is *Lomatia*, which is easy enough to be used as a popular name. Another member of the family on the lower slopes of Cash's Lookout was *Persoonia*. The leaves were numerous, about half an inch long, linear, and very sharp. The flowers were yellow, and single at the base of a few of the leaves. The fruit is a dark berry.

The only other member of the family observed was the common honeysuckle. This is an unsatisfactory name, for it is no relation to or at all like the honeysuckle of the Old Country. It is named Banksia, after Sir Joseph Banks, who well earned distinction as a botanist in the early days of Australian explora-

tion. Banksia is easy and euphonious, and every effort should be made to encourage its use. The flowers in Banksia are clustered into dense oblong heads, but if a flower be dissected out it will be found to be built just as in waratah. A tree which we do not devote much attention to, simply because it is so common, is sheoak. Yet this is to the botanist perhaps the most interesting tree in Australia, or rather its family the Casuarinas deserves this distinction. It is a unique type of vegetation, clearly of the flowering division known as dicotyls, it has the general appearance of a conifer. The water conserving design of its anatomy reaches the limit of effectiveness, and under what conditions it can have been evolved can only be conjectured to have been of persistent drought.

GEOLOGICAL NOTES

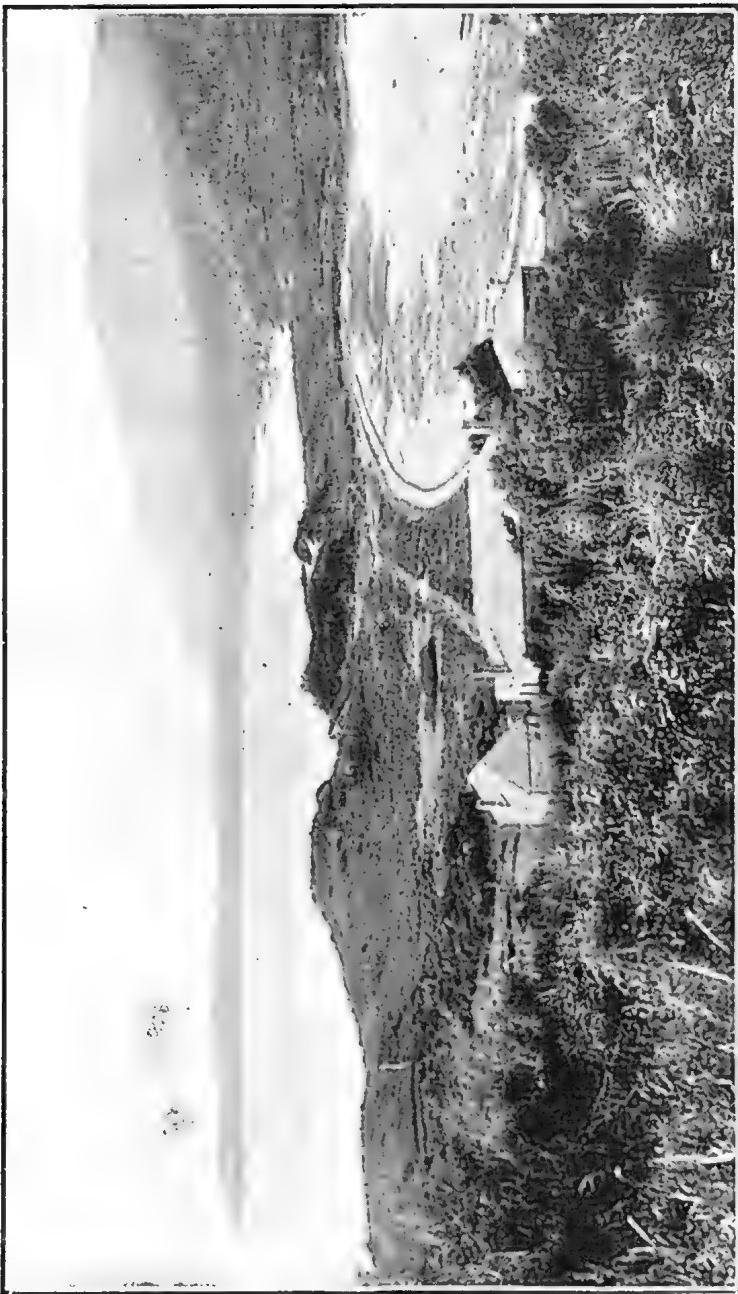
By W. H. Clemes, B.A., B.Sc.

The geology of Eaglehawk Neck, though extremely simple, is nevertheless very interesting. The main features of interest are the structures and fossils to be found in the Permo-carboniferous mudstones, which are well-developed along the coast. The cliffs have bold vertical faces, somewhat quaintly sculptured owing to the regular jointing, and reaching upwards in places to the height of fully 1,000 feet, but the bare rock is often beautified and screened by the clinging vegetation, which finds a precarious foothold on the ledges hollowed out by the moist sea winds. The horizontal bedding planes and vertical joints would lead one to imagine that the cliffs were the work of titanic builders, labouring to protect the land from the fierce assault of the waves, and building a wall that would reach even to the skies. The foundations must have been badly laid, as numerous faults are visible, and the beds are sometimes slightly dipping to the south-east. The lower beds are gritty conglomerates, whose studded surface bears eloquent testimony to the cold of the early Permo-carboniferous age. The stones were transported there by the ice floes, which abounded in that great bay which includes most of what is now South-Eastern Tasmania, and whose melting caused them to sink down to the mud of that ancient sea-floor.

Granite blocks are there, brought from the distant granito fringe far out to sea, together with rocks from still older formations which have since disappeared. These basal beds have become curiously jointed, the joints being filled with ferruginous material. This is seen to the best advantage at the Tessellated Pavement, where the cross-jointing is most regular. This is probably due to a mass of igneous material which was intruded into the rock immediately beneath the portion now visible. The surrounding rock was raised to a high temperature, and, on cooling, took on the jointing of the intruded rock.

The jointing along the lines of weakness has led to the formation of numerous caves, arches, and chimney rocks. On the basal beds is resting a curious band of gritty sandstone, which appears faulted to different levels along the coast. Above this comes a zone filled with the remains of marine life, which again is succeeded by an almost barren zone. The chief fossils are *Spirifer convoluta*, *S. darwinii*, *Productus brachythaeirus*, *Platyschisma ocula*, *Sanguinolites etheridgei*, and the various *Stenopora* and *Fenestellæ* together with *Protoretepora ampla*.

The mudstones are succeeded by Jurassic sandstones of the usual type. Cretaceous diabase has forced its way through the overlying strata, and is



EAGLEHAWK NECK, LOOKING SOUTH-EAST.

now found capping the surrounding hills. Later sand-dunes fringe the bay and form the neck itself, a product of comparatively recent origin. The sinking of the land to the south of Tasmania diverted the drainage from the Tasman Basin into the "drowned valley" of Storm Bay, and permitted the silling up of the entrance to the former channel, the rift valley of Eaglehawk Bay. The sinking of the land

to the east permitted an invasion of the sea, and the excessive erosion has resulted in the Hippolyte Rocks being isolated ten miles out to sea. These granite rocks are reported to be the home of numerous seals and seabirds. A diabase sheet to the south is responsible for the curious "Lanterns" of Fortescue Bay, and the beautiful scenery of Cape Pillar and its vicinity.

ORNITHOLOGICAL NOTES

By Clive E. Lord, Curator of the Tasmanian Museum

Taking into consideration the beautiful weather experienced this Easter, it is only natural to assume that Nature adorned herself for the occasion, as far as was in her power at this period of the year. To relieve the dull autumn green of the eucalypts and beeches, the living gems of the forests—the gaily coloured birds—added the final touch to an already beautiful scene.

Camped as we were at the foot of a high wooded ridge, which sloped eastwards to the seashore, we were away from the haunts of the semi-aquatic and wading birds, but the birds of the ocean were never far away. Looking across the bay, gulls, terns, cormorants, and penguins could usually be seen, while further out the gannets plunged from the heights to secure their food; or the majestic albatross soared aloft. Around the shores patrolled a pair of sea eagles (*H. leucogaster*), while over the ridge behind the camp a wedge-tailed eagle (*U. audax*) wheeled in stately circles, and a brown hawk (*H. horrigora*) flew at a lower altitude.

Occasionally the harsh notes of a flock of black cockatoos (*C. xanthocephalus*) would echo through the timber while around the camp numerous green parrots (*P. viriventris*) were always in evidence. To add to the colour effect, several rosellas (*P. eximius*) would dart from tree to tree, their bright plumage showing to good effect in the sunlight.

Around the camp the robins (*P. leggi* and *P. phoenicea*) added a touch of colour as the male birds appeared in the full glory of their new autumn plumage. An occasional dusky robin (*A. vittata*) was also observed. Our two Tasmanian species of whistlers, the grey-tailed (*P. glauera*) and the olive (*P. olivacea*) added their quota to the melody of the avi-

fauna choir, while the erratic actions and quaint notes of the dusky fantail (*R. diemensis*) were studied by all who visited the creek which ran by the camp.

Both the yellow-tailed (*A. chrysorrhoa*) and the brown-tailed acanthuras (*A. diemensis*) were common, while the blue wren (*M. longicaudus*) appeared to be fairly so. The liquid notes of the whistling shrike thrush (*C. selbii*) were typical of the locality, and the rich and resounding notes of this species were in marked contrast to the plaintive notes of the pardalotes, which issued from the gums.

The largest family gathering represented were the honeyeaters (meliphagidae), of which no less than seven species were noted, the majority in close proximity to the camp. The strong-billed (*M. validirostris*) and the black cap (*M. melanocephalus*) were around in numbers, while amid the lower vegetation the Tasmanian spinebill (*A. dubius*) flitted from tree to tree. Both the yellow-throat (*P. davidi*) and the crescent honeyeater (*L. australasiana*) were often to be seen, as well as an occasional New Holland honeyeater (*M. nova-hollandiae*). On one occasion even a wattle-bird (*A. inauris*) was noted. We did not observe many ravens (*C. australis*) during our stay, but that fine songster, the lesser white-backed magpie (*G. organicum*) added his song to the general melody of the birds. While the district under review does not lend itself as a home for many forms of bird life, several interesting forms were noted, and while the foregoing is by no means a complete list of all the species observed, it will serve to give a good idea of the general grouping of the avifauna of the locality in which we were camped.



PREPARING TO LEAVE



CREEK SCENE, NEAR THE BLOWHOLE.

The Mercury Office.



Tasmanian Field Naturalists' Club

EASTER CAMP, 1920

To Safety Cove (Port Arthur)
TASMANIA

GENERAL REPORT

By CLIVE E. LORD, Hon. Secretary

BOTANICAL NOTES

By I. RODWAY, C.M.G., Government Botanist

GEOLOGICAL NOTES

By A. N. LEWIS

ZOOLOGICAL NOTES

By CLIVE E. LORD and H. H. SCOTT



Cape Raoul, Tasman Peninsula.

LIST OF CAMP MEMBERS

MR. L. C. ABBOTT.	MR. C. LORD.
MR. W. ABBOTT.	MISS A. MONTGOMERY.
MR. R. ATKINSON.	MR. S. H. MCPHEE.
MISS O. BARNARD.	MISS M. MOORE.
MR. R. N. BEEDHAM.	MISS E. POCOCK.
MISS M. BROWNELL.	MR. A. C. PROPSTING.
MR. F. B. CANE.	MR. G. L. PROPSTING.
MR. C. CHEPMELL.	MRS. J. REID.
MR. W. H. CLEMES.	MISS A. REID.
MISS J. COLLIER.	MR. J. REYNOLDS.
MR. J. R. CRANE.	MR. L. RODWAY.
MR. S. W. CRANE.	MISS A. ROWNTREE.
MISS D. CUTHBERTSON.	MISS M. SAGASSAR.
MR. E. CRUICKSHANK.	MISS E. SAGASSAR.
MISS W. CRUICKSHANK.	MR. H. SARGISON.
MR. I. DORUM.	MR. P. SCOTT.
MR. A. S. GILBERT.	MR. S. SHARLAND.
MISS I. HARRIS.	MR. R. STOPS.
MR. E. HARRISON.	MISS TRAVERS.
MR. H. S. INNES.	MRS. E. WALLER.
MISS J. KNIGHT.	MISS C. WALKER.
MR. A. N. LEWIS.	MR. R. WOOLLEY.

ASSISTANTS

MR. W. WOODWARD.
 MR. V. MOLROSS.
 MR. L. WOODWARD.



The Campsite.



The Camp Site.

Tasmanian Field Naturalists' Club

EASTER CAMP OUT, 1920

By Clive E. Lord, Hon. Secretary

The term naturalist in its widest sense means a lover of nature. Not only the collector who goes forth to gather specimens for his collection but also those who delight in the innumerable glories of the open way. The bold scenery of seashore and mountain are sufficient for some, but others prefer to examine more critically, with the result that every inch of country yields examples of its flora and fauna to those who seek. A camp amidst some section of the primitive bush offers much to the naturalist. Chances of adding to his collections, of extending his knowledge, and, above all, of spending an extended period in the heart of Nature's realm. The Easter excursions of the Tasmanian Field Naturalists' Club offer such opportunities to the naturalist and are taken every advantage of. For the past sixteen years regular excursions have been held, and the extent of these may be gauged from the following list of places visited and the number who attended:—

- 1905—Bream Creek; camping party, 9.
- 1906—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907—South Bruny; camping party, 27.
- 1908—Maria Island (Soldier's Point); camping party, 27.
- 1909—Wineglass Bay (Freycinet Peninsula); camping party, 81.
- 1910—Cole's Bay; camping party, 97.
- 1911—Southport; camping party, 60.
- 1912—Maria Island (Darlington); camping party 69.
- 1913—Safety Cove, Port Arthur; camping party, 80.
- 1914—Wineglass Bay; camping party 100.
- 1915—Maria Island (Darlington); camping party, 36.
- 1916—Eaglehawk Neck; camping party, 36.
- 1917—Wedge Bay; camping party, 33.
- 1918—Safety Cove; camping party, 38.

1919—Eaglehawk Neck; camping party, 39.

1920—Safety Cove, Port Arthur; camping party, 47.

During the war period only small camps were held, and now the shortage of shipping and the era of high prices make it impossible to visit localities as far away as was done before 1914. After due consideration, Safety Cove was chosen as the camp site for 1920, and on the morning of Wednesday, March 31, an advance party of fifteen members left Hobart in the s.s. Reemere, to prepare the camp. Fortunately fine weather was experienced, and the members of the party were able to enjoy the steam across Storm Bay. Near Cape Raoul numbers of dolphins were seen, and the photographers of the party had a very busy period attempting to secure photographs of the evolutions of these aquatic mammals. Lunch was partaken of as we crossed Maington Bay, and soon the cliffs of Brown Mountain one of the flanking sentinels of Port Arthur, were abeam, and the vessel steamed into the sheltered waters of the Port, eventually anchoring in Safety Cove at half-past 1, after an enjoyable trip of five hours. All hands were soon busy transporting the camp impedimenta ashore, and a miscellaneous collection of packages began to accumulate on the beach. After partaking of some light refreshments, thoughtfully provided by the ladies of the party, the canners set to work erecting tents and getting the camp in order. This work was continued until darkness fell, and the Easter moon appeared to gild the waters of the cove, and cast soft shadows in the clump of eucalypts among which the camp was pitched. After tea and a stroll along the beach, Blanket Bay was sought, in order to prepare for the work of the morrow.

Thursday morning gave every promise of fine weather, and after an early swim and a welcome meal, all set to work to



Breakfast Time in Camp.



Breaking Wave, near the Remarkable Cave.

complete the work of preparing the camp. This took most of the day, and towards evening all was ready for the reception of the main party, who were due to arrive some time after midnight, as they did not leave town until 7 o'clock. Looking at the camp from the hill to the south-east, it made a pretty picture. The silver waters of the bay terminated in an arc of white sand, behind which rose a small sandbank, which again dipped before rising to the hillside. In the sheltered dell so formed grew a number of eucalypts, and it was amidst these that the tents, nineteen in all, were pitched.

The main party of the campers arrived in the early hours of Good Friday morning, and it was some time before all lights were out and the call of the spotted owl was the only sound that challenged the roll of the surge along the shore. In the morning Chef Woodward and his assistants had a busy time, and while breakfasting the members made plans for the day. Some decided to go exploring amid the gullies of the hillsides, others along the shore, while the main party decided to picnic at the Remarkable Cave. The cave is situated on the coast, towards Cape Raoul, and there are some splendid scenic views in the vicinity. On former occasions we had been able to walk right through the cave to the beach beyond, but this year, upon descending into the bowl-shaped opening leading to the cave, we were surprised to find that all the sand had been washed away. The floor of the cave was about five feet lower than formerly, water-washed boulders gave place to sand, and the ocean rollers surged through from the sea. After spending most of the day in this vicinity the party returned to camp.

On Saturday the chief excursion was to Port Arthur. It was here that the historians of the party were able to tell the history of the many old buildings relics of the convict days, that are to be found there. Port Arthur was named after Colonel George Arthur, who did so much work elaborating "the system" during his administration of Tasmania from May 11, 1824, to October 30, 1836. It must be remembered that Tasmania, or, as it was then known, Van Diemen's Land, was, together with the other Australian colonies, a dumping ground for the surplus and undesirable population of the Mother Country. Many notable criminals were transported to these shores, but, on the other hand, many were sent out for purely trivial offences. The policy of transportation was to a large extent one of forced emigration and colonisation of new possessions. As is well

known, the occupation of Van Diemen's Land was forced on the British authorities owing to fear of the French making a prior claim. Further, the idea of colonisation with the aid of forced convict labour had been brought under the notice of the French Government many years before. Charles de Brosse in 1756 drew up such a scheme, and the eventual occupation of the Australian zone by the English was carried out on very similar lines to those proposed half a century before by the learned Frenchman. Colonel Sorell had founded a station at Macquarie Harbour, in order to isolate the most undesirable of the convict population, but, owing to its situation, Colonel Arthur decided to abandon this, and concentrate the main settlement on Tasmania's Peninsula, with the result that the initial settlement was made in September, 1830. Gradually the whole of the peninsula, of which Eaglehawk Neck formed the key, was linked up, and many sub-stations founded. The main station, however, was at Port Arthur, the present name of the settlement being Carnarvon. It is here that one sees the ruins of the past. The church, the prisons, the residences of the officers and men, together with many attendant structures, which were all in use eighty years ago, are now mostly in ruins, and serve to waken in many minds a desire to know more or less of their history.

An excellent view of the settlement is to be obtained from Scorpion Rock, a small hill behind the church. Here most of the members assembled and studied the panorama which spread out as a map before them. In the foreground lay the ruins of the church, one of the most picturesque relics of the old regime. This building was designed by a prisoner, who preferred to be known by the name of Mason. He afterwards received his pardon, and practised as an architect in Sydney, where he was very successful. The church, which would accommodate 1,500 persons, had an eventful history, which commenced during its erection, as there were two murders committed, one while the trenches were being excavated, and a second while the roof was being put on. One of the convict workmen was also detected making spurious coin from the lead. In front of the church, and near the shore of the bay, are the ruins of the large penitentiary, which was capable of accommodating 657 prisoners within its walls. Beyond this the walls of the magazine still stand, and towards the point the Commandant's residence remains. To the right are to be seen the ruins of the hospital, the asylum, officers' quarters, and the model prison, while across the waters of the bay lies Point Puer. It was here that the boys from



Safety Cove Road, Port Arthur.

ten to eighteen years of age were stationed, and taught various trades in the workshops, etc. As many as 800 boys were detained on the Point at one period. At the extremity of Point Puer lies Dead Island, the last resting place of 1,769 bodies, of which only 180 are stated to be those of "free people." The surroundings of the township are picturesque in the extreme, and seeing them, as we did, on a beautiful autumn day, we could not help regretting that such a beautiful spot had such a tragic history. Port Arthur is already famous from a historic standpoint, but as the years roll on, and the ruins of the old buildings crumble away, the locality should become famous for another and more worthy reason—its picturesqueness.

On the following days various excursions were held to places of interest in the vicinity of the camp, such as Brown Mountain, Half-Moon Bay, the Blowhole, etc. Every advantage was taken of the good weather experienced, and the excursions made from the camp were enjoyed by all. All places in the near vicinity of the camp, both on seashore and hillside, were visited by one or more parties during our stay, and when the general assembly took place round the dining tables for the evening meal, the results of the various outings would be compared. The work of one section was always particularly inquired into. This was because they usually had to report a large catch of fish, which made them very popular at breakfast time next morning.

The evenings in camp were usually spent round a large camp fire, and the musical members of the party, of whom there were many, would provide excellent programmes. The "choir" was assisted by two gramophones, kindly lent by Mr. Cane and Mr. Guilbert.

One incident during the excursion is well worth mention here—the sight of several hundred dolphins in Maingon Bay. The animals were close in shore among the breakers, and their evolutions in the surf formed an interesting spectacle for many hours on Easter Monday. Groups of these animals would swim in with the incoming breakers, and just as the wave was on the point of breaking, they would execute a sharp turn, spring high into the air, and proceed seawards once again to meet another breaker, and gambol in the sea just beyond the fringe of the surf. It is necessary to see such a sight to appreciate fully the immense swimming power possessed by these aquatic mammals. In spite of the immense force of the breaking waves and the various undercurrents incidental to such surf, they seemed quite at home, and were able to proceed with lightning-like speed

in any direction. The photographers of the party had many attempts to secure photographs of this interesting scene, and, in spite of the difficulties in the way of securing a good picture, several negatives have been obtained which give a good idea of the subject.

With the advent of Tuesday morning it became necessary to strike camp, and prepare for homeward. There was a general note of regret as we struck the tents, which had been our homes for the seeming too few days of the Easter holidays, and once more collected the camp impedimenta on the beach. After an early lunch, most of the party set out to walk to Nubeena, in order to enjoy another picnic, and also to escape any chance of mal-de-mer whilst proceeding round Cape Raoul. The Reemere arrived soon after midday, but by the time all the camp gear was aboard, a strong southerly sea had arisen, and, after making an attempt to put to sea, Captain Calvert decided it would be better to wait till morning. The boat proceeded to Carnarvon jetty, and the party from Nubeena were recalled there. Those members who had to be in town by Wednesday morning motored back to the city immediately, but the remainder were accommodated at Carnarvon overnight, and proceeded to Nubeena on the following day, where the Reemere called for them, and finally arrived home at 3 p.m. on Wednesday. Although the extension of the trip was unavoidable, and necessitated a certain amount of "roughing it," it all added to the experience of camping. The incidents relating to the event were many, and, in some cases, decidedly humorous, so that when the sixteenth Easter camp of the Field Naturalists' Club is discussed in the future the extended portion of the holiday will carry its full share of reminiscences.





Old Church, Port Arthur.

BOTANICAL NOTES

By L. Rodway, C.M.G., Government Botanist

The principal tree at Port Arthur, just as in any other part of Australia, is the ubiquitous Gum-tree. But the name Gum-tree covers a multitude of forms, some common, some rare, and about our camp at Safety Cove, or rather at a comparatively short distance from it, were two forms of unusual interest. One of these grew on Brown Mountain. There it assumed the dimensions of a shrub, while at Uxbridge it is a tall forest tree. The popular name I have heard applied to it is Heart-leaved Gum. At Uxbridge this and a robust form of Cider-Gum are called Yellow Gum. Unfortunately, our popular names are not well fixed, and, therefore, somewhat confusing. This Brown Mountain shrub crops up in many parts of Southern Tasmania, but except at Uxbridge I have never known it grow into timber dimensions. Most eucalypts respond very readily to local conditions; some in matter of size, others in variability of structure. This tree is very constant in form, but, as already stated, varies from a small shrub to a huge tree.

Now, the other tree that I wish to refer to grows at the entrance to the port, and is peculiar for the variations of its forms and the change in shape of leaf due to local conditions. I have never met with this exact form from anywhere else, though there are closely related ones on Bruny and Muddy Plains. Seed obtained from a tree on Bruny, near the isthmus, produced two strains of young, neither of which was like the parent. Saplings

from seed borne by the Port Arthur form also were of two kinds. They have not yet reached mature foliage, but some approach a common form of Risdon Gum, while others appear distinct from any recorded form. This is doubtless a form of Risdon Gum commonly also known as Blue Peppermint and Cabbage Gum. The variability of Risdon Gum, both from obscure eugenic variability and response to edaphic conditions will supply a prolonged study for some student who can slowly accumulate data.

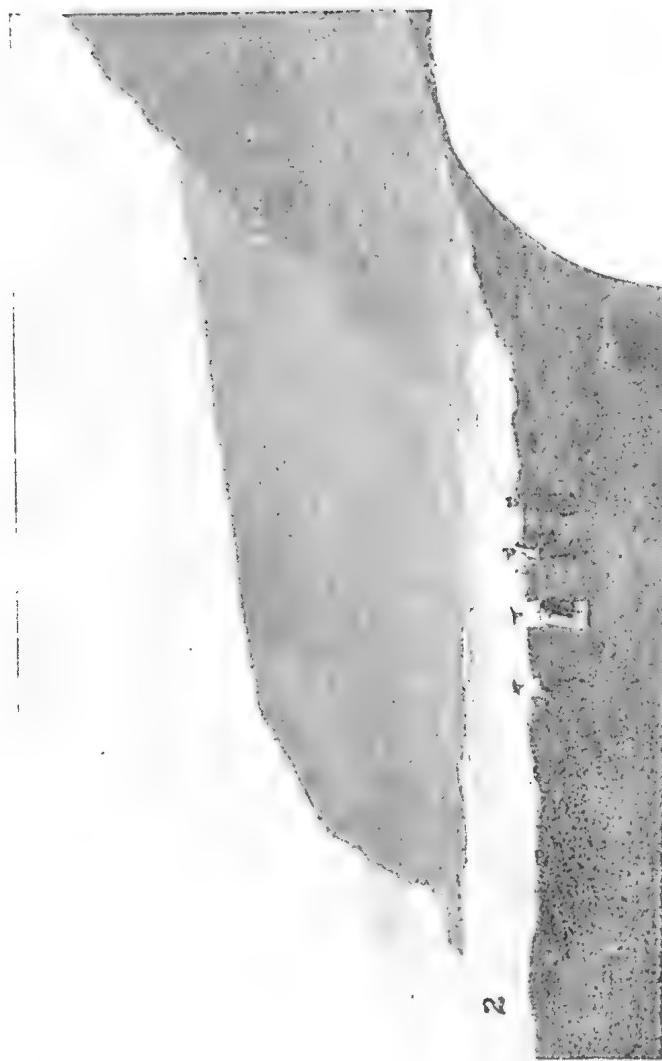
Two interesting Heaths grow near the Blowhole at the Heads, neither of which occurs anywhere near Hobart. They are *Epacris myrtifolia*, and *Epacris heteronema*. The former is so like the dwarf Tea Tree growing in the vicinity that a close scrutiny had to be made to distinguish between them when not in flower. This heath only occurs in the extreme south of Tasmania. The latter is more common, and extends also to Australia. The Port Arthur plant is typical, with closely imbricate, erect, pungent pointed leaves, but on the west it varies considerably, and is destined in the future to be divided into many species.

One orchid, *Eriochilus autumnalis*, was flowering freely, but amongst the lower groups there was not much collecting to be done. One moss, growing right on the boulders at the shore, appears new. Also a *Polysaceum*, which is a fungus allied to Puffball, was gathered in quantity. A few underground species were collected, but only of common forms.



Scene near the Camp.

Near the Remarkable Cave.



GEOLOGICAL NOTES

By A. N. Lewis

The Safety Cove locality is not one of those wonderful geological museums which occur in many places through Tasmania; in fact, it is almost barren of features of interest. Furthermore, it has been reported on many times during the last century, and all its features fully described. Readers are referred to brief reports contained in the accounts of the Field Naturalist Camps of 1913 and 1918.

With the exception of the Point Puer Peninsula, some sandstone beds behind Carnarvon, and a few other outcrops running along the hills on the west of Port Arthur, and showing in places along the south seaboard, the rocks of the district are the ubiquitous diabase, uniform and uninteresting, and rendered only worthy of more than passing mention by the picturesque columnar structure of the southern extremity of the beds. The Point Puer Peninsula is composed of permo-carboniferous mudstones, and gritty sandstones, strata of the upper limits of the system faulted out of its natural relations with the surrounding later beds of sandstone, and appearing now at the same level as the mesozoic strata on its immediate west. The well-known cliffs stretching along the coast north and south from Eaglehawk Neck are of the same system, but the connection has been either entirely destroyed by the later intrusion of the masses of diabase that now form the hills from Cash's Lookout to Arthur's Peak, or more probably has been lifted by that diabase and all the overlying strata has since been washed away. These beds form bold cliffs on the seaward side, but are uninteresting geologically. A few strata contain characteristic specimens of marine fossils of the period, but the majority are entirely barren.

A lay visitor to the southern end of Tasman's Peninsula cannot avoid asking the reason for the fluted structure of Cape Raoul and Cape Pillar and the cliffs between. The formation is the same as the well-known Organ Pipes on Mt. Wellington, but entirely different from the columnar structure to be observed at Burnie Breakwater, Table Cape, and the Giant's Causeway in Ireland, which is basalt, with hexagonal columns. During the permo-carboniferous system

great beds of mudstone and limestone were laid down. On top of these, during the lower mesozoic system (vide Twelvetrees' classification of Tasmanian geological succession), the beds of sandstone were deposited. During the upper mesozoic system came one of those periods in the earth's history during which the forces of the fiery interior overcame the resistance of the hard, cold belt of rocks of the surface, or the compression of the outer belt of solid rocks became too severe for the more plastic interior, and huge quantities of igneous matter forced its way into the formed beds of limestone and sandstone, and, with unimaginable heat melting the older rock with which they came into contact, forcing their way through cracks and weak places, and working in sills through whole beds of rock, they formed in some places rounded bosses, in others flat dykes, of that hard rock we know as diabase. In the course of ages the softer sandstones have in many places been worn away, until the hard diabase stands out as hills. From somewhere, probably under Mt. Arthur, a quantity of this rock welled up. One huge mass forced its way southward, following the level of the strata, thus obtaining the flat top noticeable on Cape Raoul, until, by the supply failing, or by its driving force failing on account of the mass cooling until it could no longer melt its way and move further, it formed at its southern end a wall of diabase several hundred feet thick in the sandstone. Probably a similar mass welled up from somewhere under Arthur's Peak. As time went on the action of the weather has worn away the overlying sandstone, and the sea has eaten into the land through the comparatively soft sandstone until it has reached the harder diabase, which now stands out for us to see in very much the same shape as it stopped when molten and cooled in the surrounding strata. The columns formed where the edge of the molten matter stopped and cooled right against the sandstone. This diabase never came out to the surface as a volcano or lava flow. Probably where Port Arthur now exists there was no diabase, and the water, having no hard rock to contend with,



Luncheon at Carnarvon.



Creek Scene.

has worn a valley. This has been submerged by a general sinking of the land, and the sea has undoubtedly assisted to erode the bordering cliffs.

In many places round the coast the older beds of sandstone had not disappeared, and you can observe most interesting sections in places where the diabase has come in contact with the sandstone. In some places the transition from pure diabase to unaltered sandstone only occupied the space of about a foot, but in most places the sandstone for many feet adjoining the diabase has been severely metamorphosed. There are several narrow band-like sills of diabase scarcely a foot thick, which had forced their way through the strata. On the other hand, you can see masses of sandstone entirely surrounded by diabase, but still retaining the characteristics of a sedimentary rock. The sandstone itself in many places shows very marked evidence of false bedding. In some sections scarcely one strata is parallel to another. The area in which these formations can all be clearly seen is the coastline surrounding the Remarkable Cave. The cave itself is traversed by a fault, this probably giving the original weakness for the sea to work on.

An interesting study can be made in this locality of the degrees of metamorphism of the sandstone varying with distance from the diabase. Some which the diabase has actually touched can hardly be distinguished from that rock. In the strata further away the attendant hot water has dissolved or melted the sandstone entirely, and redeposited it in the same place, but as

a quartzite, very hard and glassy, in no way resembling sandstone, and devoid of any trace of sedimentation, varying in colour from black and grey to a yellow putty colour. As the sandstone lay a stage further away, this becomes less marked, until we see it taking place only in certain strata, leaving the rock alternate strata of quartzite and sandstone. They are usually of different colours, some banded black and white, or white and yellow, the banding showing very effectively on waterworn shingle. Finally, only the cementing material has been dissolved and redeposited round the grains of quartz forming the original sandstone, leaving the rock to all outward appearances sandstone, but very much harder. Many handsomely coloured cobbles, showing all degrees of metamorphism, can be seen in profusion on the shingle beaches.

In many places the sandstone or quartzite is twisted considerably. This is very noticeable at the mouth of the Remarkable Cave. On the top of Brown Mountain there are many veins of quartzite in the diabase resembling sandstone very closely. These are some remains of the overlying sandstone through which the diabase forced its way, and most were probably deposited in cracks in the diabase after having been dissolved in hot water.

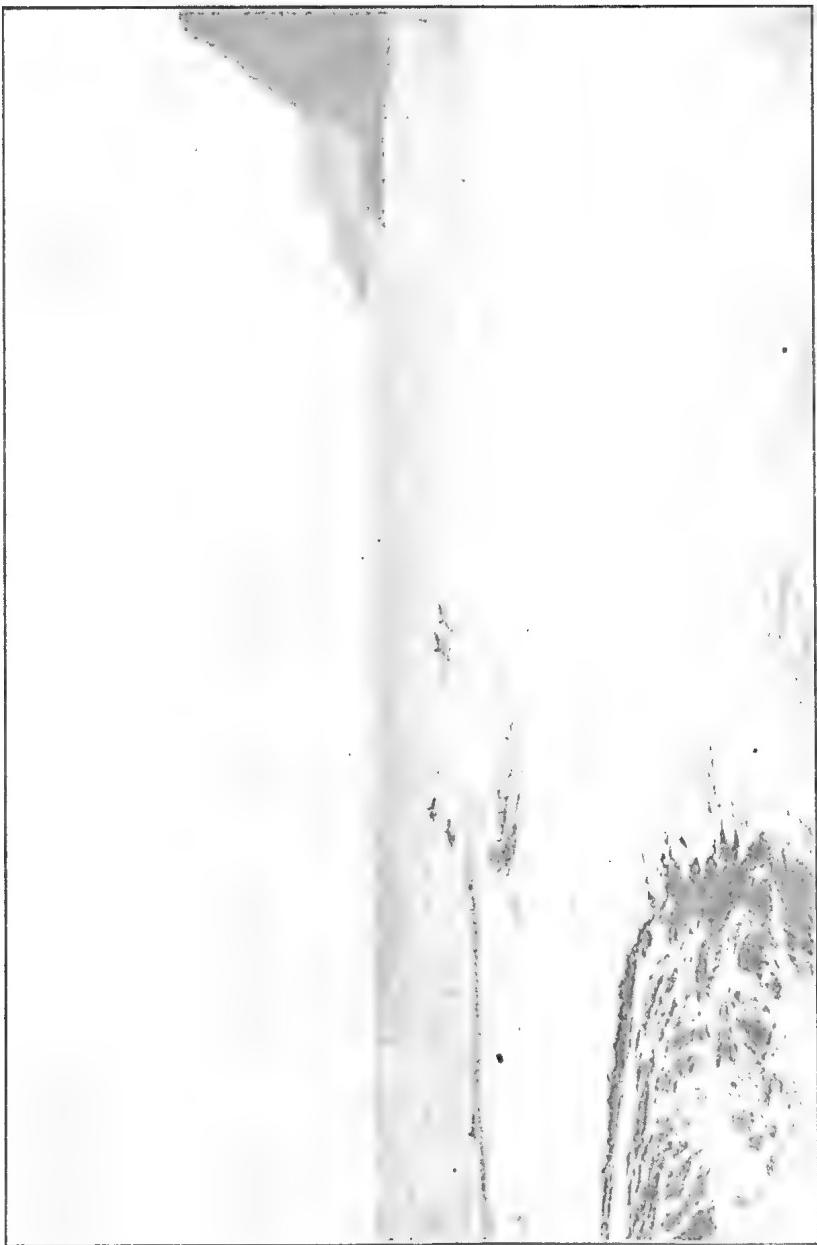
There is an entire absence of remains of the aborigines, so common round our coast, though there are some traces on Point Puer. This may be due in the Safety Cove district to the inward march of the sand, which has formed considerable dunes, and covered the ground for some distance inland.



At the Remarkable Cave.

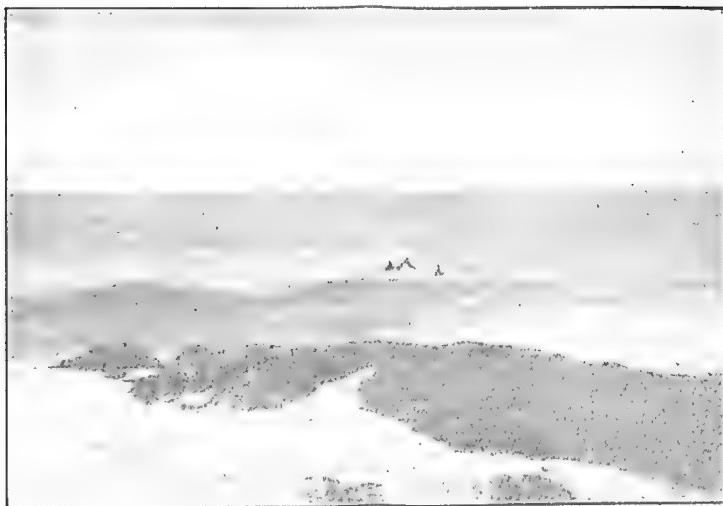
Dolphins in Surf.

From Proc. Roy. Soc. Tas., 1929.



ZOOLOGICAL NOTES

By Clive E. Lord and H. H. Scott



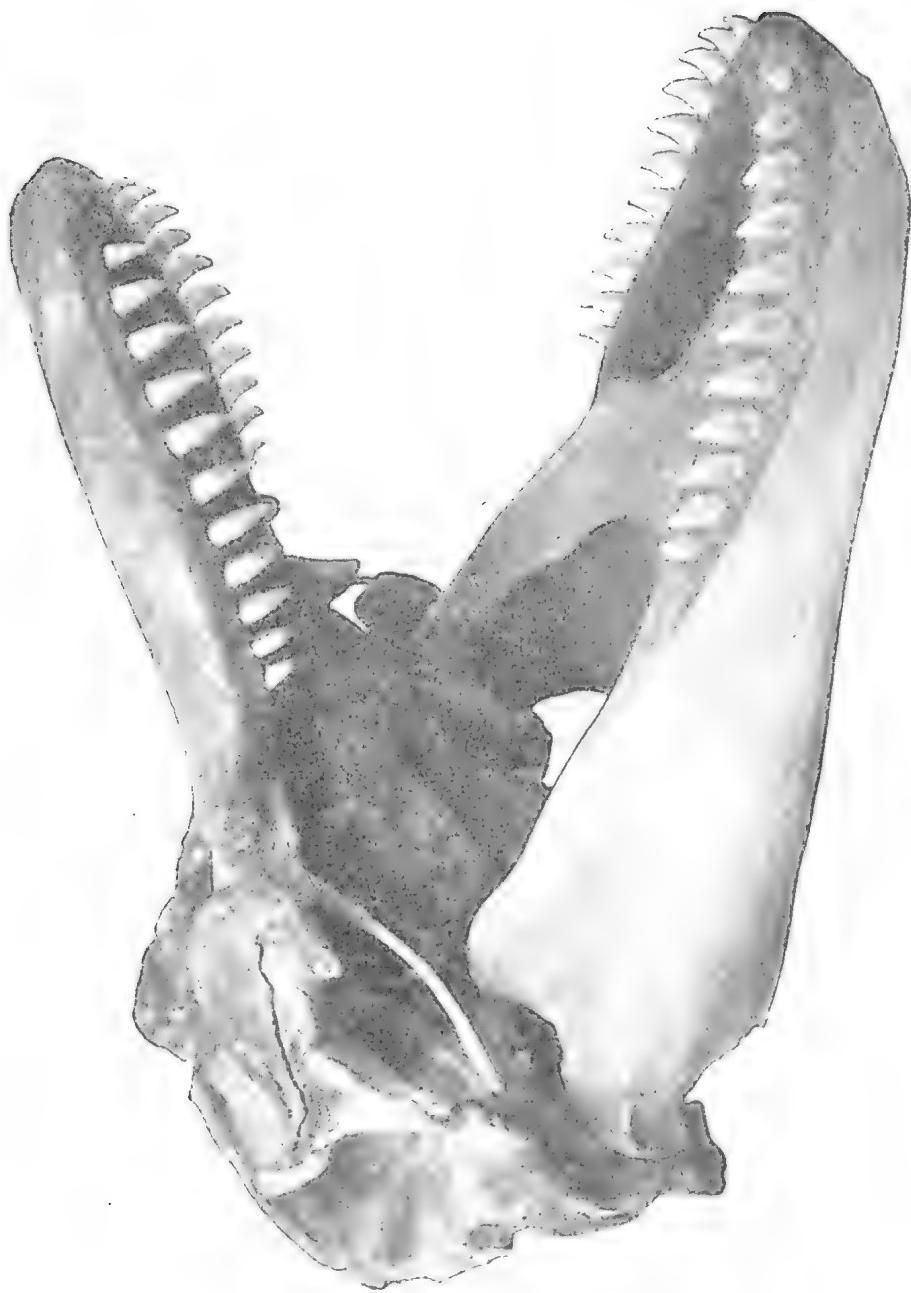
Dolphins at Play.

Owing to lack of funds and the general increase in cost of all the essentials for such camps as are organised by the club, we have found it impossible in recent years to charter a vessel in order to carry out dredging operations. This is to be regretted, as we have had to forego our studies of many of the interesting forms of animal life, particularly that relating to the lower orders. This year we were fortunate in observing a unique display by a large number of dolphins in Mairion Bay, and this fact has suggested the idea of giving a short general description of the Tasmanian whales and dolphins as the basis for the zoological notes of this year's camp report. In previous years it has been the custom to deal with the minute forms of aquatic life, so the alteration may prove a welcome deviation.

Students may note that whales are divided into two sub-orders—the whalebone whales (*Mystacoceti*) and the toothed whales (*Odontoceci*), the latter including the dolphin family. Before proceeding to discuss these two divisions, however, it might be as well to recall a few elementary facts in relation to these interesting aquatic mammals. For it must be remembered that all Cetaceans are mammals, and not fish. They are warm-blooded and breathe air by means of their

lungs, and have no such organ as the gills of a fish. The tail is not vertical (as with fish) but horizontal, and this allows the animal to plunge either upward or downward in a very short space of time.

By muscular contraction the whole bulk of the body can be reduced, thus causing less displacement during the act of diving, while the sudden act of unrolling, at great depths, helps to shoot the animal to the surface. The chief muscles so employed are similar to those that roll a hedgehog into a ball. The nostrils are placed high on the head to permit of easy breathing, and the water that appears to be thrown up when a whale "spouts" is not water discharged from the lungs as one naturally supposes, but is the hot air condensing, on reaching a cooler atmosphere, into a visible vapour. An added effect is also given on occasions owing to the whale expelling the used air from its lungs a short time before the nostrils are clear of the water. The whales store oxygenated blood, and not pure air, to keep them alive when below the water line, a marvellous series of storage cells being provided in the vascular system for this object. The sloths also store blood to enable them to sustain the muscular effort of hanging to a limb for days at a time.



Skull of "Killer" Whale.

From Proc. Roy. Soc. Tas., 1919.

The osteological features of whales offer many interesting studies. As with all mammals (with the exception of the sloths, etc., they have seven vertebrae forming the neck, but these are compressed into a shorter space horizontally than in any of the other mammals. Like the sloths also they have solid ribs, and the cartilaginous attachments are ossified to resist the pressure encountered at great depths. The ear bones are extremely strong and hard, and are only loosely attached to the skull. This explains why ear bones of whales are sometimes obtained during deep sea dredging operations.

The examination and classification of the ear bones of the Cetacea would form an interesting branch of study for any student attracted to this branch of science.

The origin of the whalebone obtained from whales is often misunderstood. This is not "bone" in the ordinary sense of the word, but is evolved from the structure of the hard palate. Owing to this wonderful structure the teeth have atrophied, and in these whales have become rudimentary, and only appear in early life. As these early teeth degenerate, so they give way to the large triangular blades of whalebone, set at an angle and frayed on the inner side of the jaw. This arrangement allows the whale to progress through the water and sieve out the small animalculæ, commonly called whale food or "Brit," upon which these huge creatures feed. The animal does not swallow the excess of water, but having secured a mouthful of food it elevates the tongue and this drains off the liquid through the plates of whalebone, the fringes of the inner edges retaining the essential portions of the whale's diet, after which the mouth is closed and the food duly swallowed.

The whalebone whales (*Mystacoceti*) are naturally the more valued group commercially. Owing to the cosmopolitan nature of the Cetacean order as a whole it is difficult to say with any degree of certainty exactly which species occur in Tasmanian waters, but there are at least four, the most valuable being the Southern Right Whale (*Balena australis*).

The toothed whales (*Odontoceti*) are by far the larger group, and the division contains many interesting forms varying from the huge sperm whale to the smaller dolphins. An interesting osteological fact concerning this group is that the skull is nearly always asymmetrical to a marked degree. The sperm whale or Cachalot, the giant of this division, has this asymmetry carried to such an extent as to close one nostril, thus causing the animal to blow a single jet of heated air and water instead of two such jets, as in all other whales. From this whale the morbid secretion known com-

mercially as ambergris is obtained, and from which chemists evolve a perfume. Whereas the sperm whale may grow up to sixty feet in length, there is a dwarf species, the short headed sperm whale (*Kogia*) which only attains a length of ten feet. It might be mentioned here that the greatest length of any species of whale yet authentically recorded is under one hundred feet measured between perpendiculars. The ancients had very large ideas regarding whales, and their writings refer to "fish taking up more than acres of ground." Or in another instance nine hundred and sixty feet in length! Needless to say, such exaggerations will not stand investigation.

The beaked whales (*Ziphidae*) form an interesting group of the toothed whales. Such forms as *Hyperodon*, *Mesoplodon*, and *Ziphius* occur in Tasmanian waters, but they are seldom obtained, and not a great deal is known about them. The scientific world will benefit to a great extent owing to the work now being carried out in Great Britain by the British Museum. Owing to an arrangement made with the lighthouse and coast-guard stations, all stranded whales are immediately reported. In this manner many interesting specimens are being obtained and information gathered concerning species hitherto considered of very rare occurrence.

The family *Delphinidae* includes the fierce "killers" and the smaller common dolphins. The latter are usually called "porpoises" by Tasmanian fishermen, but as a matter of fact, we have no true porpoises in Tasmanian waters, all being, strictly speaking, short-nosed dolphins, or true dolphins. The dolphins can be distinguished by the deep grooves on the palatal surface of the maxillaries and by the larger number of teeth.

The common dolphin has been described under many species, but as far as Tasmania is concerned it would appear that the characters of *Delphinus delphis* would suffice for most of the specimens obtained, but that owing to the fact that the Cetacean order as a whole is a rapidly evolving one the question of subspecies must be considered.

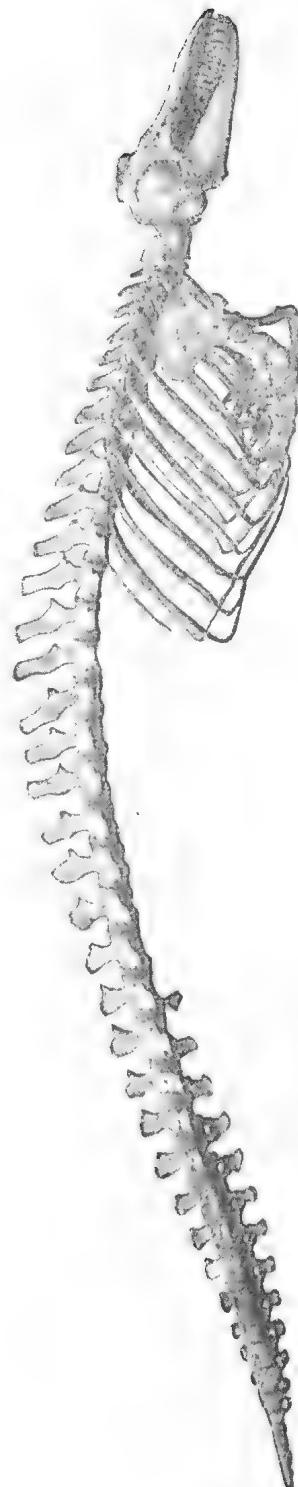
The sight we were privileged to see on Easter Monday has already been referred to in the general report as well as in a paper contributed to the Royal Society of Tasmania. The photographs illustrating this serve to give some idea of the event, however, although it was impossible to obtain a view showing the immense number of dolphins in the bay, and we have to thank the council of the Royal Society for permission to use their illustrations, and to Mr. F. B. Cane for the time he spent in securing such excellent photographs of a very difficult sub-

ject, made more difficult by the very bad light that there was on that day.

The larger dolphin (*Tursiops*) also occurs in Tasmanian seas, but it appears to be more plentiful in the North. It can be distinguished by its larger size, and the small number of its teeth, also by the colour of the body being black above, and dirty white below, thus missing all the marbled tints found in the true dolphin, and the ornate curves of colour that adorn its sides.

The pilot whale or "Blackfish" is common around the Tasmanian coast, and on occasions large numbers are stranded.

The rapacious killer whale (*Orca gladiator*) is occasionally seen. The members of this species have been rightly described as the wolves of the ocean. An examination of the skull shows the enormous power possessed by the large and recurved teeth. This species, which hunts in small packs, will attack the smaller dolphins, seals, and even larger whales, with great ferocity. It attains a length of from twenty to thirty feet. Another interesting form, the false killer (*Pseudorca*) attains to about two-thirds of this size, but is by no means as well fitted for aggressive warfare as is *Orca*.



Skeleton of False Killer (*P. crassidens*).
From Proc. Roy. Soc. Tas., 1919.

Tasmanian Field Naturalists' Club



EASTER CAMP, 1924

"THE NARROWS," MARION BAY,
FORESTIER'S PENINSULA,
TASMANIA.

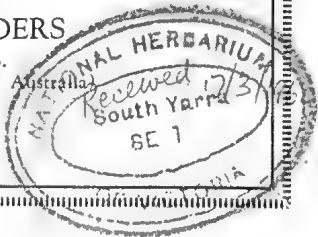
GENERAL ACCOUNT
By CLIVE E. LORD, F.L.S.

BOTANICAL NOTES
By L. RODWAY, C.M.G.
(Govt. Botanist)

GEOLOGICAL NOTES
By A. N. LEWIS, M.C., LL.B.

NOTES ON SHELL LIFE
By CHARLES A. PITMAN.

NOTES ON THE SPIDERS
By ROBERT PULLEINE, M.B.
(President of the Royal Society of South Australia)





TASMAN'S SKETCH, showing his ships at anchor and the flag placed on shore.

From Heere's "Tasman."

Tasmanian Field Naturalists' Club

1924 Easter Camp at "The Narrows," Marion Bay, Forestier's Peninsula.

GENERAL ACCOUNT

By CLIVE E. LORD, F.L.S.

The twentieth Easter camp of the Tasmanian Field Naturalists' Club was held at "The Narrows," which are situated at the head of Marion Bay, and which serve to mark the entrance to the East Bay Neek Canal, at the north end of Forestier's Peninsula, so named by Baudin in 1802. Last year our camp was situated in the Western Highlands, but this Easter the lure of the coastal bays again claimed our attention.

The exact site of the camp was in a sheltered bay on the southern side of "The Narrows." Across a narrow strip of swift running water was Marion Bay (or Bream Creek) beach, at the end of which rose the hills which terminated in the bold outline of Cape Bernier—the "Hell-fire Bluff" of the fishermen. To the north-east was Maria Island, whilst to the south stretched the Peninsula with its stretches of forest, broken by lagoons and coastal bays. Many of the latter possess historical interest as well as scenic charm, for it was in close proximity to the camp site that the Dutch sailors under Tasman first set foot on Tasmanian soil in 1642, and a day later the Dutch flag was planted on the shores of a small bay a few miles to the east. The Dutch came in search of trade, but found nothing of value. The golden lands and spice islands appeared not to exist in these more southern seas. Lack of trade, inhospitable coasts, and westerly gales discouraged further exploration in the far south. Moreover, the procession of history was advancing through the 17th and 18th centuries. As the Dutch had captured the Spanish eastern trade

so they in turn began to feel the pressure of the French and the English. The former were the first to reach Tasmania, and the name Marion Bay recalls that fact.

Members generally appreciated the choice of the locality for the camp, and attended in fair numbers, 40 being the complement of the camp. More than a quarter of these left with the advance party on Wednesday morning, April 16, in the motor yacht Arcadia. Town was left at 8 a.m., and after a smooth trip Dunalley was reached about four hours later. After the bridge was opened we proceeded on our way, and soon arrived at the camp site at the eastern end of Blackman's Bay—the true Frederick Henry Bay of Tasman.

It took some time to convey the camp impedimenta ashore by means of several small boats, and after a welcome cup of tea a start was made to set out the camp and erect the tents.

Darkness arrived all too'soon, but the work had been fairly well advanced, and after the evening meal, a camp fire drew together a tired but happy party, who were prepared to rest after their work and make plans for completing the camp the following day. As the Easter moon rose above the eucalyptus on the hills to the east of the camp the scene recalled memories of previous camps, more particularly the camp site at Thoum or Wineglass Bay on the Schoutens, where the camp site was protected, in a similar way, by a low range of hills to the east —occupying the country between the camp and the ocean.



THE ARCADIA ANCHORED OFF THE CAMP SITE.

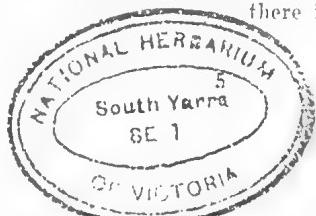
The Bay in which we were camped was divided by a small creek, on one side of which the ladies' tents were pitched. A handrail built on to a fallen tree served to provide a suitable bridge, and connected up the two main highways of the camp. The large dining tent and cook's galley were erected near the shore, close to the point where the slowly running creek crossed the beach. Opposite this point were "The Narrows," with their rapid tides, which mark the ebb and flow from Blackman's Bay. This bay is generally accepted as the true Frederick Henry Bay of Tasman (although there is some evidence that Tasman intended the name to apply to the outer bay also), and it is unfortunate that, originally owing to Furneaux's error in 1773, when he anchored in Adventure Bay and thought he was near Tasman's anchorage of 1642, the name Frederick Henry Bay is now generally given to a large bay to the north-east of Storm Bay. It is also unfortunate that, as occurs with other names in so many places in Tasmania, the name Blackman's Bay is given to a bay in the River Derwent, a few miles south of Brown's River. It would be well if Tasman's original designation could be reverted to. In which case the present Frederick Henry Bay could be given the name applied to it by Illyes (1793), namely, Henshaw's Bay. D'Entrecasteaux's title of North Bay would be open to objections, particularly as the bay, on the outer coast of which Tasman anchored, is now generally known as North Bay.

On the opposite side of the Narrows stretched the long sand spit forming on its outer side, the head of Marion Bay. The bay was so named by D'Entrecasteaux after the French explorer Marion du Fresne, who anchored there in 1772, he being the second explorer of whom we have record to reach Tasmania. The French vessels Mascalin and Marquis de Castries anchored off the coast on March 5, 1773, and remained at anchor for several days. Various expeditions were made by boats' crews, and it was during this expedition that Europeans first met the Tasmanian aborigines. Unfortunately, owing to a misunderstanding, a fight ensued, and one at least of the natives was killed.

The name Marion Bay is now usually given to the indentation in the coast between Cape Bernier and Cape Paul Lamanon, which cape was apparently named by Baudin's expedition, as such nomenclature appears for the first time on Freycinet's charts of 1802. And the bay between Cape Paul Lamanon and Frederick Henry is known as North Bay, with Prince of Wales Bay forming a small cove in its north-west corner. The French, however, intended that Marion Bay should comprise the indentation between Cape Bernier and Cape Frederick Henry, and in this connection it may be as well to give a quotation from Peron (the historian of Baudin's expedition), as it clearly sums up the position. The following is a translation of the French account:—"That Marion in this part made no new discovery; for, as well as it would have been impossible for Tasman to have recognised Frederick Bay, and take that survey of it, for which we are indebted to him, without traversing, and consequently discovering Marion Bay, this bay itself, as may be seen by comparing the draught of it by Tasman with our own, is more correctly laid down by Tasman than by Marion. However, as custom has sanctioned these denominations, we shall confine the distinction of Frederick Hendrie Bay to the small port visited by M. H. Freycinet, and that of Marion Bay to the large roadstead in front of the port, comprised, as we have before noticed, between Cape Bernier on the north and Frederick Hendrie Cape southward."

Turning to the account of Marion's voyage, and examining the copies of his charts of the locality, which were used by D'Entrecasteaux and Baudin, we gather some interesting information. It is commonly stated that the first meeting of Europeans and Tasmanian aborigines took place on the Bream Creek, or Marion Bay beach, due probably to the modern restriction of the name, and also to previous lack of research as regards the early charts. From these charts, which show soundings and the routes followed in the main boat expeditions, and the account of the voyage, the following interesting data can be obtained:—

(1) That according to Marion's chart there is a ten-fathom shoal off what is



now known as North Bay. It has over 20 fathoms all round it.

(2) That Marion anchored on the outside of this, a little to the north of Green Island, in 22 fathoms, with a grey sandy bottom.

It is of interest to note that Marion apparently anchored close to where Tasman did although Tasman may have been inside the shoal (if Marion's charts are correct as regards its occurrence). Tasman anchored in 22 fathoms, white and grey fine sand.

(3) That Marion first landed in what is known now as North Bay, and not on the Bream Creek beach, as is usually stated.

(4) That Marion's charts, in addition to the soundings, etc., show the lagoon at the back of the sand dunes of the present North Bay.

Tasman's charts did not show either the lagoon or its outlet, which factor might be used as evidence that Gell was more correct than Walker with regard to the interpretation of the log in connection with the locality examined by Tasman's boat on the morning of December 3, 1642. The natural scenic charms of the locality are therefore interwoven with the romance of the early exploration of our southern isle, and this was an additional interest to the members of the camp.

Thursday was spent by the advance party in completing the camp and preparing for the reception of the main party. The members of the latter section left town at 6.30 p.m. on Thursday, and motored through to Dunalley. Here they transhipped to a motor launch, and continued the journey to the camp. A quiet, still night made the run pleasant, and as the boat neared the hills at the foot of which the camp site was situated one of the original Anzaes aboard remarked that the condition of the weather and the loom of the shore reminded him forcibly of the night of the landing on Gallipoli.

After a welcome supper, the new arrivals were duly installed in the various canvas homes; but it was some time before all was silent, except for the dull boom of the waves and the occasional call of the spotted owl, or a sea bird on the nearby sand spit.

On Friday morning several excursions were arranged, the main one going to the Tasman Memorial which was recently erected. Leaving the camp, the party proceeded in an easterly direction for about a mile, gradually climbing, until the summit of the hill was reached overlooking the ocean. From here a fine vista of the coast could be obtained. Away in the distance to the north-east of Cape Bernier The Schoutens could be seen, whilst much closer Maria-Island loomed up and reminded us of the Easter camps which we had held in that locality in the past.

To the south-east the peculiar shape of Green Island rose from the sea beyond the extremity of Cape Frederick Henry. This is the original cape of that name as far as Tasmanian nomenclature is concerned, but by no means the original Green Island, for there are many islands bearing a similar designation around the coasts of Tasmania. The original Green Island of Tasmanian waters is the small island in the Channel opposite Woodbridge, as this was named "Ile Verte" (Green Island) by D'Entrecasteaux in 1792.

Following the slope of the ridge down towards the sea, we came to the base of Cape Paul Lamanon, to the south of which is situated Prince of Wales Bay, the site of the Tasman Memorial. The bay is quite a small inlet, and towards its head there exists a bar of stone, upon which, from both sides of the bay, there jut out reefs of stones which serve to form an inner cove to the bay. In rough weather the sea breaks upon this with relentless force, but at the time of our visit on this occasion the sea was calm and the tide exceptionally low, which gave a good opportunity for an examination of the reef and allowed us to note the solid nature of its foundation and the massive boulders of its superstructure. It has been said that the reef was formed by the bay whalers in order to make a boat harbour, but there can be no doubt as to its natural formation, although the bay whalers may have added to it in some degree. It would need an immense amount of labour to make any material difference to the reef, and in the absence of any direct proof the

legend that the bay whalers built the reef must be viewed with grave doubts. The main part of it is most certainly of natural origin, and it is only a small portion of the superstructure which admits of discussion on this point. A change of structure in the rocks is very noticeable here, and may be largely responsible for the shelf-like reef. A fault can be plainly seen at the base of Cape Paul Lammcn, particularly on the exposed cliff section on the northern face.

The Tasman Memorial is situated at the head of this inner cove, and in view of the discussions which have taken place in regard to its location (see Papers and Proceedings of the Royal Society of Tasmania, 1923), particular attention was paid to this aspect of the case.

Personally, after an exhaustive examination of all available documents, obtaining opinions from authorities in Europe as to charts, etc., and two extended visits to the site, I am of the opinion that the party who made the original selection for the site of the monument (vide press reports 22/1/1923) failed to locate the correct position or the landing place of Tasman's carpenter.

Considering that the wind was blowing strongly from the north (not from the east as some authorities have stated), there would be a great break on the reef, as the tide was low, and Tasman particularly refers to the surf, so that it is extremely unlikely that his boats would have crossed the bar, especially as the northern shore of the bay would be more sheltered. Moreover, the sketch in Tasman's journal definitely shows the flag on the northern shores of the bay, and the description of the sloping ground agrees far better with this position than with that at the head of the inner cove. It is questionable if there are any traces left of the original trees noted by Tasman, but it is easy to find four stumps in either position. A comparison of a recent survey of the bay with one made over half a century ago shows a fair amount of erosion on the inner northern shore of the bay and down among the shingle on the beach. Just outside the reef, remains the enormous stump of a very old eucalypt. It

any tree might have a claim as being Tasman's tree, I think that this one might well be considered, for as far as I can gather from the available evidence it occurs just at the spot where the carpenter apparently swam ashore.

In dealing with the landing it is well to remember that the Dutch adopted the Gregorian system of chronology in 1583, whereas England did not change from the Julian system until two centuries later. Mr. G. H. Halligan has kindly worked out the dates, etc., in order to compute the state of the tides, etc., and his calculations show that Tasman's December 3, 1642, was a Wednesday, it being full moon two days later.

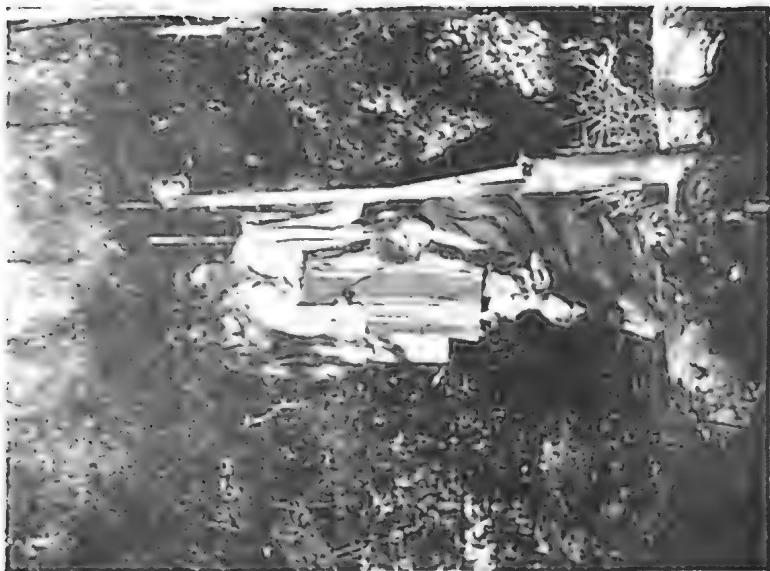
On the occasion of our present visit we were at the bay practically at the same state of the tide as Tasman, namely, soon after midday two days before the full moon. It was then an exceptionally low tide, a large extent of the reef being exposed. There was this difference, however, that the sea was calm, whereas Tasman had a very strong northerly breeze, which would make a large break upon the reef, and at low tide make it impossible for a boat (particularly if it were the boat's crew's first visit to the bay) to attempt to come through the breakers. To use Tasman's own words, "The surf ran so high that we could not get near the shore without running the risk of having our pinnace dashed to pieces."

As our party had lunch on the shores of the bay, the deeds of the hardy Dutch explorers were naturally recalled to mind, and one attempted to visualise the scene that took place when the first explorers of our southern isle planted their flag "as a memorial to posterity." Other incidents of Tasman's visits were recalled to mind, for on the day previous to the planting of the flag boats from the ships had passed through the Narrows, and the site of our camp was probably within a few yards of where the first white people set foot on Tasmanian soil. The explorers returned to the ships, and among other matters reported that the land was inhabited, probably by giants, owing to the distance apart certain climbing notches were which were cut in some of the trees. They had also seen smoke from fires in the distance, and

THE BRIDGE OF STONE.



CROSSING THE BRIDGE.



heard a sound "like a trumpet or small gong." This latter sound was probably the note of the black bell magpie (*Strepera fuliginosa*), which occurs in this locality, and whose note has been likened by Gould to the sound of a hammer on an anvil, and by Littler to that of a tramway gong. As regards the giants, there was a fixed idea, antedating even the voyage of Quiros, that the great unknown lands of the south were inhabited by giants.

To the south of Prince of Wales Bay is North Bay, or Two-Mile Beach, behind the sandhills, of which there is a large lagoon, which breaks through the beach at its south-east end. J. B. Walker, in his paper on the discovery of Tasmania (1890), considered that this was the spot where Tasman's men landed in search of water on the morning of December 3, but the Rev. J. P. Gell, in his paper (1845) on the same subject, considered that the south-east side of the bay referred to was the south-east side of the present so-called Blackman's Bay.

The campers had therefore many points of interest to discuss as they stood on the hillsides, viewed the scene from different aspects, or wandered along the shore in search of specimens. Upon return to camp, and after the evening meal, there were naturally many items of interest to discuss as the members gathered round the camp fire.

On the following day there were excursions to various localities. Some members boated across "The Narrows" and spent some time on Marion Bay beach; others went to the lagoons, or further south to Wilmot Harbour. The original name of Wilmot Harbour, was Lagoon Bay. This latter name occurs on the charts attached to the old bay whaling leases. The name still survives to a certain extent among local residents, but it is also applied to the present North Bay (Two Mile Beach), and in the latter position the name appears on some modern maps. There are lagoons at the back of the sandhills in both bays, but the one at Two Mile Beach is the larger. The botanists searched the gullies for fungi, whilst the geological section found much of interest in the formation of the cliffs to the east of the camp.

Next day a large party followed the shore along the cliffs south of the Narrows, and a fine view of the coast was obtained. The sight of the bold outline of Cape Bernier recalled the fact that it was so named by the French expedition under Admiral Baudin in 1802. This expedition carried out numerous surveys in the southern and eastern parts of Tasmania. At the time the exact position of Tasman's Frederick Henry Bay was still in doubt, and M. Faure, a hydrographer of Baudin's expedition, satisfactorily settled it by means of a boat expedition which was organised whilst the ships were still at anchor in the Channel.

On February 17, 1802, the French ships, after a stay of 36 days in the channel, sailed into Storm Bay, and gradually worked round the coast until on the evening of the following day they anchored in the strait between Maria Island and the mainland.

As usual, boat expeditions were sent out, and one, under the command of M. Mauronard, circumnavigated Maria Island, naming many of the prominent bays and headlands during the course of his voyage. Other parties had been sent out, one under the command of M. Freycinet, sen., who was away eight days, during the course of which he thoroughly examined Marion Bay, the Frederick Henry Bay of Tasman (now unfortunately known as Blackman's Bay), and other points of interest on the south-east coast.

Freycinet the younger was away a much shorter time, but carried out excellent work. He explored the coast northward of Cape Bernier (which was named by this expedition), and worked up the coast until abreast of Cape Bourgainville. From here the survey was taken up by a boat under the command of M. Faure, who steered for the Schouten Islands of Tasman, and in due course discovered the Isle du Phoques (Isle of Seals, now known as White Rock), and comments upon the numbers of seals seen upon it. M. Faure found that the five islands shown on Tasman's charts really consisted of a mountainous peninsula and one large island. The strait separating the two was called Geographie Strait, after their

vessel, and the large bay between the mainland and the peninsula Fleurieu Bay.

Quickly following the several French expeditions, and undoubtedly as a direct result thereof, came the first settlement of our island by the British in 1803. For many years the east coast remained unsettled, and some of the first white inhabitants were probably sealers and whalers. With the advent of "bay whaling" on a large scale several large stations were formed, and certain of these were in the immediate vicinity of the camp site.

As we followed the cliffs southward of "The Narrows" we came to a small bay, into which a creek ran. It was in this bay that Gardner's whaling station was situated nearly a century ago; whilst in the next bay, within the shelter of Cape Paul Lamanon, there was another station (Watson's?), the ruins of which were still visible when the Rev. J. P. Gell visited the locality in 1845, and he refers to the shore as "being thickly strewn with the bones of many hundred whales whitening in the sun."

It was on the shores of this bay that our party assembled for lunch, after which members visited Cape Paul Lamanon, noting certain peculiar geological characteristics and also the remains of aboriginal kitchen middens on the Point. Another visit was also paid to Prince of Wales Bay in order to give further attention to the site of the landing and the geological structure of the reef.

As the shades of evening advanced various parties returned to camp, all being quite ready to greet with a cheer the welcome notes of the cornet which announced the evening meal.

The following days were spent in a similar manner, parties being formed to visit different sections of the coast or the more inland gullies and hills, for the locality offered a variety of scenery and conditions of country, and the thanks of the club are due to Mr. Murphy for so kindly allowing us to camp upon his property.

At one of the gatherings attention was drawn to the fact that the next Easter would mark the 21st successive

Easter camp of the club, and there appeared to be a general feeling among the members that the occasion should be marked in a fitting manner, and the hope was expressed that the club would arrange a "coming of age" camp to Freycinet Peninsula ("The Schoutens").

The suggestion has been received with such enthusiasm that the club will doubtless have to make every endeavour to give effect to it. Freycinet Peninsula and Schouten Island afford splendid camping sites, as reference to earlier camp reports will show. The area is also of interest owing to the surveys carried out by members of Baudin's expedition, so that the historical and geographical observations made during this year's camp can be profitably continued in the more northern area.

With the advent of Tuesday morning the campers realised that it was time to strike camp and return to routine ways once more. Gradually the tents disappeared as they were taken down and folded away. A pile of camp impedimenta began to accumulate on the beach, and shortly after noon the siren of the Arcadia announced her approach. Members gathered round for lunch, after which the camp impedimenta was boated on board the motor yacht, and final preparations were made to leave.

About 2 p.m. the anchor was raised and the return journey commenced. Soon the sandy shores of our camping ground were left behind, and members settled down in preparation for the journey. After they had passed through the canal a slight roll was experienced crossing Storm Bay, but the lusty, if not strictly musical, singing of popular camp songs served to combat the effects of mal-de-mere which might have been felt by some members of the party. Hobart was reached at 7 o'clock, thus bringing to an end another Easter outing. Looking back, the encampment may well be regarded as successful, for it gave members an opportunity of studying nature's ways in the open and collecting such specimens as they sought for, as well as providing a means of members gathering together in a social manner.

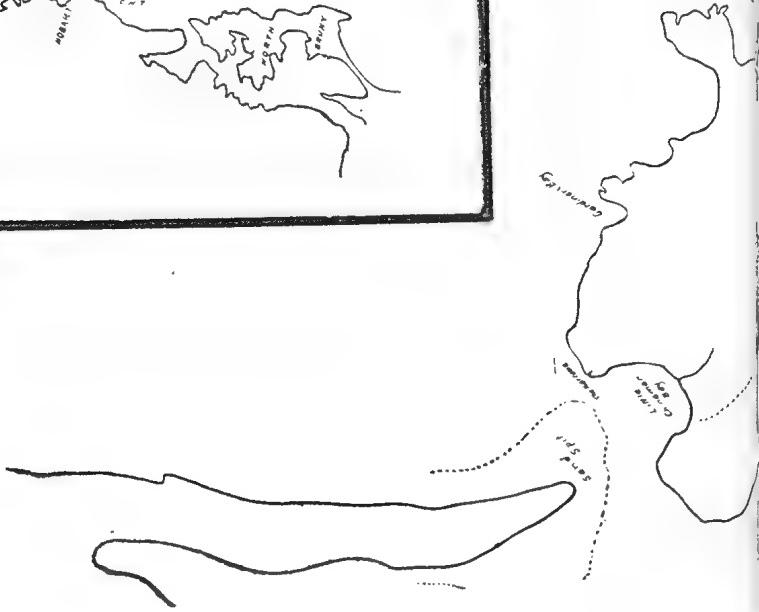
We were glad to have with us Dr. R. Pulleine, president of the Royal Society of South Australia, who, together with his two daughters, came across especially for the camp. The interest and support of such leading natural history workers as Dr. Pulleine goes far to show that the work the club is doing is appreciated even beyond the limits of our own state, and gives encouragement to those who have been entrusted with the control of the club's affairs to carry on. The general management as regards meetings, etc., together with the special work entailed in organising the camps, necessitates considerable ef-

fort by the executive; but when the results are examined, and the club's past history and present position reviewed, it gives encouragement to continue in the attempt to make the future history of the club even better than the past.

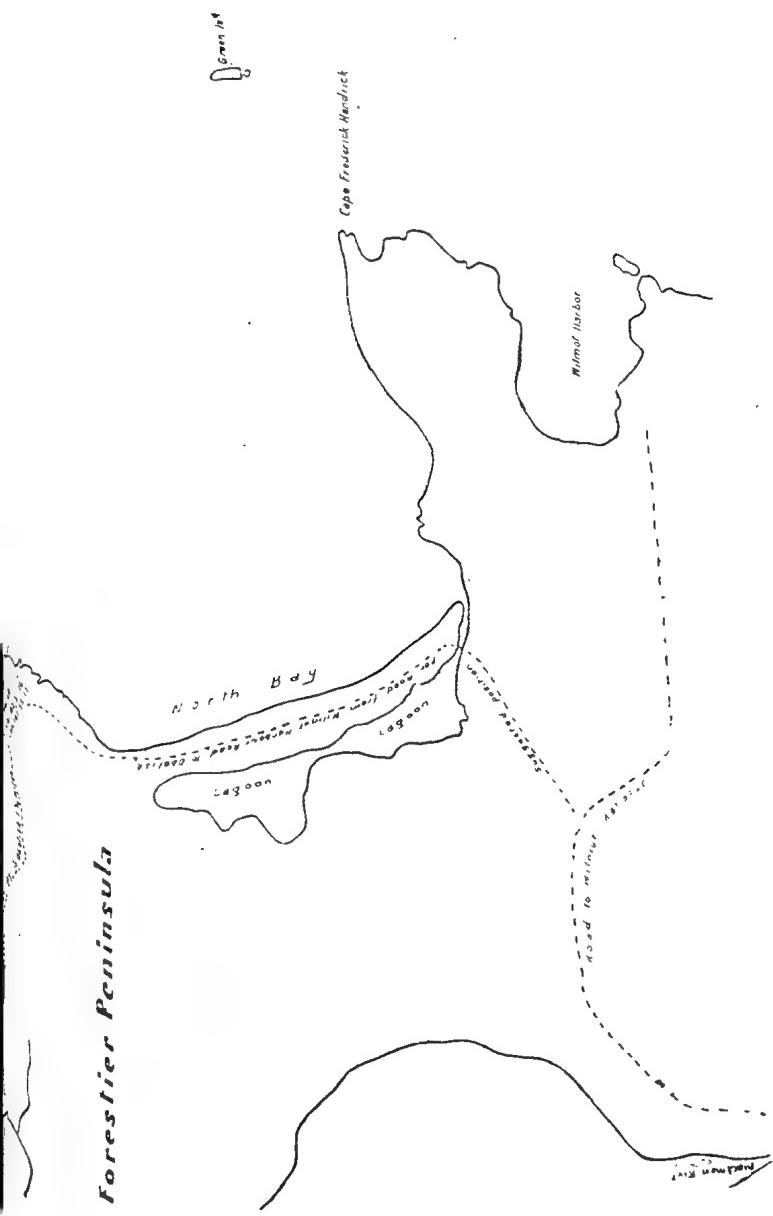
All being well next Easter we will celebrate our twenty-first annual camp, and although the Easter camps constitute but one item of the club's annual programme, they are by no means the least. It is hoped, therefore, that next Easter many familiar faces will be grouped around the campfire which may be built in one or other of the coastal bays of Freycinet Peninsula.



AT THE TASMAN MEMORIAL.



Forsterier Peninsula



LOCALITY SKETCH OF VICINITY OF CAMP,
Inset: Sketch of S.E. Tasmania.

BOTANICAL NOTES

By L. RODWAY, C.M.G.

Autumn is not a good time of the year to go plant-hunting. The botanical students, however, did very well. The prevailing eucalypts about the camp were peppermint and blue gum, and occasionally messmate, oreatate, and white gum. None of these assumed milling proportions, but old stumps bore evidence that in days gone by some large trees had been gathered. Gum trees belong to the myrtle family, which is widely spread about the earth, and is correspondingly varied in structure.

Two other members of the family were met with, namely, Yellow Bottle-brush, which formed a dense scrub in the bed of the creek, and a small heath-like shrub with white flowers, commonly called native broom. This popular name is objectionable, but we have no other. The name given it by botanists is *Calythrix tetragona*, which does not appeal to people generally. *Calythrix* does not look at all like a near relation to the mighty eucalypt. However, when you come to examine its structure the similarity of essential details becomes apparent. The wild heath was well out in white and all shades of pink.

Though it was late in the season, six different orchids were found. These

included two greenhoods. There was one, *Pterostylis pedoglossa*, a form we used to include in *P. obtusa*, but Fitzgerald considered it distinct, and named it as above. It differs chiefly in having a rosette of leaves at the base of the stem, which does not occur in *P. obtusa*, and the labellum is shorter and more obtuse. The other *Pterostylis* was *P. aphylla*, a singular little plant, commonly bearing two flowers, so placed that they appear to be facing one another. Next we gathered *Prasophyllum brachystachyum*, with many small flowers on a tall stalk, and of so uninteresting a form to the general student as to have not obtained a common name.

The lesser fant-or-chid, *Chiloglottis diphylla*, was flowering freely, which is unusual. The autumn orchid, *Eriochilus autumnalis*, was here, but not abundant. The only other form met with was the little Fly orchid, *Aeianthus exsertus*.

Amongst ferns, maidenhair was fairly common, and that useless, persistent pest, bracken, was everywhere and in quantity. Some interesting fungi were gathered, including a broad, distorted *Clavaria* of a bright crimson-scarlet colour, which appears to be in want of a name.



ALONG THE SHORE.

NOTES ON THE SPIDERS

By ROBERT PULLEINE, M.B.

(President of the Royal Society of South Australia)

The spider fauna of Blackman's Bay proved to be very rich and interesting.

At Tasman's Memorial the strange-tailed spider, *Arachnura Higginsi*, was found. This spider is often gregarious, and is distinguished, apart from its bizarre form, by being able to spin three distinct colours of silk for various purposes.

The handsome black and white *Araneus Bradleyi* was taken, and *Singotypa Wagneri* was very abundant. Both these species are found in Southern Australia.

The *Singotypa* invariably suspends a curled-up leaf in the centre of its orb web, and uses the tube so formed as its lair and retreat. At Bream Creek, besides the *Singotypa*, two beautiful species of *Araneus* or orb web weavers were abundant.

Along the cliffs one found sheet web weavers (*Agelacinae*) of several kinds, while the hackled web weavers of the genus *Amaniobius* were in evidence everywhere. Under bark the great *Delena cancerides* was plentiful, often with its numerous brood of young, over which the mother keeps watchful care. This spider cannot be confounded with any other. Its great size and uniform coloration distinguish it, as well as the remarkable coiled "watch spring" capillary tube in the palp of the male.

Delena Cancerides has a wide distribution in Australia, the one thing it requires being eucalypti, with large sheets of loose bark.

Other bark-loving species in evidence were *Clubiona robusta* and *Cheiracanthium gilvum*, both familiar to collec-

tors on the mainland, besides a number of new and probably undescribed species.

Beating tea tree and eucalyptus saplings over an umbrella gave by far the richest harvest. Beautiful Artidæ or jumping spiders abounded, some of them of strange forms and brilliant coloration. This group seems to be especially abundant in Tasmania, and I can recommend it as an interesting and fruitful field to anyone wishing to take up descriptive zoology.

The Thomisidae or crab spiders were hardly less abundant, and one with a porcelain white abdomen and pale green cephalo-thorax left little to be desired in the way of decorative coloration.

Then there was the host of micro spiders which live in the spiny acacias, mostly minute forms of the genus *Araneus*.

One of the most interesting finds was a single specimen of the genus *Minetus* (the mimetic), so called because it builds an orb web, although outside the family which habitually forms this variety of snare. It is distinguished by its spherical body and long legs, beset with comb-like spines, quite unlike any other form. It often eats other spiders and occupies their webs instead of building one of its own. This specimen had ousted *Singotypa Wagneri*.

It was, however, at Mole Creek Caves that we collected Tasmania's most aristocratic spider. Amongst the hackled web spinners there is a small family, the Hypochilidae, only containing three members—one in North America, one in China, and one in Tasmania. This family differs from all known true spiders

in having four lungs instead of two (all the trapdoor spiders have four, but they are not included in the true spiders—*arasene verae*). The Hypochilids live in the entrance to caves, and this is where we found them at Mole Creek. We went there especially to find them, and as soon as the guide opened the door of Baldoek's Cave I saw a large hækled web, and knew the hypochilid was there, and true enough it was an immense creature, all legs, resting at the further end of the web.

Soon we had half a dozen in separate boxes, four females and two males, to be taken back alive to the mainland for breeding and study.

The *Ectatostica* (Hypocephilidae), described by Petterd years ago in the proceedings of the Royal Society of Tasmania, is in excess of legs Tasmania's largest spider. The body, black and globose, has the two pairs of bright yellow spots on the ventral surface of the abdomen. The presence of four yellow spots instead of two is its great distinction. We may look on this spider as ranking with the mountain shrimp, the platypus and echidna, in belonging to an unbelievable antiquity, and it has probably lived in the cave entrances since the dawn of time. The type specimens described by Petterd and Higgins years ago are in the Tasmanian Museum at Hobart.



THE CHEFS.

NOTES ON SHELL LIFE

By CHARLES A. PITMAN.

The annual Easter camp of the Field Naturalists' Club held at Little Chinaman's Bay this year afforded students of conchology excellent opportunities of visiting many of the beaches on the eastern shores of Forestier's Peninsula, the chief of these being North Bay and Wilmot Harbour. One would naturally assume that these beaches would afford plenty of scope and interest to the student, and yet very few specimens were found. This was surprising, in view of the fact that good specimens of the Helmet shell (*Phalium pyrum*) were taken in Little Chinaman's Bay, and also a large number of *Cymatiidae* (*Cymatium spongicola*), more or less damaged, were observed on rocky portions of the same Bay.

Marine specimens found in close proximity to the camp were as follows:—*Fasciolaria australasia*, *Phalium pyrum*, *P. semigranosum*, *Patella ustulata*, *P. mixta*, *P. inradiata*, *Emarginula candida*, *Nerita melanotragus*, *Seaphella undulata*, *Monodonta constricta*, *M. obtusa*, *M. adelaide*, *Brachyondontes erosus*, *Benbictum melanostoma*, *Marginella formicula*, *Haliotis noevosa*.

One good specimen of the *Siliqua* *weldii* was taken at the southern extremity of North Bay, and single valves of the *Solen vaginoides*, *Divaricella cumingi*, were observed.

At Wilmot Harbour the following specimens were obtained:—*Thais sycocinetia* (among the rocks), *Turritella gunnii*, *Cantharidus fasciatus*, and *Sigapatella calyptraeiformis*.

In the vicinity of the Tasman Memorial a large number of specimens of the tree snail (*Bothriembryon gunnii*) were taken. This gregarious mollusc is very plentiful on the trees near the sea coast, extending from the memorial to Wilmot Harbour. *Caryodes dufresni*, and *Helicarion cuvieri* were also taken on various parts of the peninsula.

In conclusion, I would like to place on record and to bring under the notice of students of conchology that excellent book of Mr. W. L. May's, entitled "Illustrated Index of Tasmanian Shells." Apart from its instructive qualities as to the complete list of all known specimens, it is of incalculable assistance as an index and guide to their classification.



GOING THROUGH EAST BAY NECK CANAL.



ON THE MOTOR YACHT ARCADIA.

GEOLOGICAL NOTES

By A. N. LEWIS, M.C., LL.B.

The camp site for Easter, 1924, near the "Narrows," at the entrance to Blackman's Bay, provided sufficient points of interest to occupy fully the time of all the members interested in this branch of the club's activities.

The East Coast of Tasmania, in conformity with the whole eastern littoral of the Australian continent, has been given its general outline by a series of great earth movements in comparatively recent times. Owing to an adjustment in the earth's interior, generally ascribed to the settling towards the centre of rock and mineral mass having a higher specific gravity than the average, a considerable sinking of the floor of the sea off the East Coast of Australia, accompanied by the elevation of the mountain ranges further inland, occurred during early Pleistocene times. This sinking drew with it portion of the coastline, which broke in successive lines of faults running parallel to the coast. Great blocks of land were submerged to different depths; the farthest seaward naturally dropping the deepest. And our present coast rises in step after step, now indicated by broken lines of hills to the ranges nowhere far inland.

These faults seldom run in a straight line, but, as is to be expected when it is remembered that they are simply a break across a rock mass, they present a ragged edge, the lines of the break often running at an angle of 45 degrees from the general line of the fault, and intersecting each other at various points. Our East Coast follows in succession lines formed in this way. Further variation is given by the pre-fault valleys, which have been submerged as the coast fell away. Wilmot Harbour is a good example of this, and also it must be remembered that during the recent ice

age the level of the ocean was at least 150 feet lower than it now is. During that time streams wore out valleys down to the then sea level. As the water rose with the disappearance of the great ice sheets these valleys were flooded, or, as the technical term goes, "drowned."

A fine cliff section is exposed between Cape Paul Lamanon and the "Narrows," and small cliffs occur at the points of the south coast of Blackman's Bay. The rocks exposed on both sides of the camp site were the common glacial conglomerates of the permo-carboniferous period. These are the results of a very severe ice age in the distant past, during which, it is surmised, an ice sheet crept up from the South Pole and covered Tasmania, reaching to at least the centre of Victoria and the vicinity of Adelaide, with glaciers at Maitland, in New South Wales, and right up in the tropics in latitude 15° S. in the north of West Australia. (This ice invasion, of course, preceded the one the effects of which we see on our mountain plateaux by millions of years, and was not in any way connected with this recent one.)

We can tell that these rocks are of glacial origin by the way the component pebbles and boulders are distributed through them. A stream washes pebbles down its bed, but in doing so rolls them over and wears them smooth. When its flow is checked it drops the heaviest first, and carries the lightest far farther on. Thus it sorts its load. Also, as a stream usually cuts only through a limited number of kinds of rock, and as each kind has a different weight, you usually find in streams formed conglomerate only one size of pebble, and of one type of rock in one place. It is very different with ice, which may

scratch and polish one or two sides of stones, but cannot roll them, and which can carry the biggest blocks with the same ease as the smallest, and which cannot sort its load, but drops everything indiscriminately when and where it melts.

The boulders in this conglomerate were of all sizes. In places they were few; in other places they were so many that they made up the bulk of the rock, thus forming what is known as "tillite." They consisted of various granites, red and grey, porphyries, slates, quartzites, mica schists, and conglomerates. In many places it was evident that they had been dropped from floating ice into soft mud, and the compressing of the mud as they dumped into it can be seen in the solid rock to-day. These rocks form the series of ridges between the camp site and Tasmania's memorial, and evidently extend some distance inland.

They dip to the west, and at the eastern end of the cliffs can be seen some beds of limestone underlying the glacial conglomerates. This is largely made up of the remains of shells and other marine life, much of which is preserved as excellent fossils. Most prominent of these is the common spirifera, a shell resembling a moth with outspread wings. There are many species and many sizes. The ancestors of our scallops, the aviculapectens, are common, and the large euredesmare forbears of our oyster. Both of these genus can be easily distinguished by their resemblance to their living descendants. The productus is another common form—a small, round shell, with its outside covered with fine spines, like a modern sea urchin. These are seldom preserved, but the stumps can always be seen. The stropholosia, with its interior like the inside of a hakia seed; also many fine specimens of small, coral-like colonies of minute animals are preserved. Some with branching arms, sometimes a foot long, and resembling a plant, are the stenopera. Another kind are the ancestors of the so-called "sea mats," common on the rocks to-day. Some specimens of these (*Fenestella crinita*) were seen 12 inches in diameter, and resembling a piece of fossil wood. These are really remarkable specimens.

At Dunalley the canal has been cut through a bed of clay of Tertiary age. Much of this contains a high percentage of iron—haematite—evidently carried up by percolating water from the decomposing diabase not far below. The aborigines used the "red ochre" for ornamenting their bodies. The iron often collects round grains of sand, and this in turn attracts more, until a small round pebble is formed, consisting of a high percentage of haematite, and known as "buckshot gravel." It is a common feature of these tertiary deposits, and can be seen covering the ground all round Dunalley. It makes excellent road material, and is so used round Dunalley, as also on the main road in Epping Forest.

The fertile hills at the back of Bream Creek are a pleasant sight from the camp. These are the remains of ancient (pliocene) volcanoes, and the fertility of that district is due to the basalt which poured out as lava, and which is rich in plant foods, and also is very easily weathered.

Recent deposits are in evidence in the long sandy beaches backed by dunes, and in the swamps behind them. The tide carries the rock particles from the cliff along the coast. When it reaches a deep, calm bay its pace is reduced, and thus its carrying power is checked, and it drops some of these grains of sand.

The ocean rollers work these to the beach, and the seabreezes blow them inland. In time this sand makes a bar right across the bay, and raises its head above the water as a sand spit, as we saw at the entrance to Blackman's Bay. Sometimes it dams across the bay, and so the old arm of the sea gradually fills up, forming a lagoon in the process, as we saw at North Bay. It was in such places that most of the world's supplies of coal were formed, and the constant blowing of the dune sand inland formed those layers of sandstone between the bands of coal that spoil so many of our seams.

Readers are referred to a note the writer has given the Royal Society of Tasmania on the most important geological discovery made during the camp, and which space forbids to reproduce here.



BREAKING UP THE HAPPY HOME.



Tasmanian Field Naturalists' Club



EASTER CAMP, 1925

THE SCHOUTENS,
EAST COAST OF TASMANIA



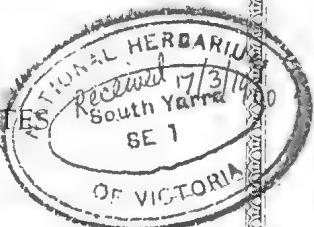
GENERAL ACCOUNT
By CLIVE E. LORD, F.L.S.

BOTANICAL NOTES
By L RODWAY, C.M.G.
(Govt. Botanist)

GEOLOGICAL NOTES
By A. N. LEWIS, M.C., LL.M.

NATURE NOTES
By OLIVE RODWAY.

ORNITHOLOGICAL NOTES
By CLIVE E. LORD, F.L.S.



Tasmanian Field Naturalists' Club

1925 Easter Camp at The Schoutens East Coast of Tasmania.

GENERAL ACCOUNT

By CLIVE E. LORD, F.L.S.

One recalls the meeting, seemingly but a few years ago, at which the Tasmanian Field Naturalists' Club was founded. Analysing the trail left by Father Time, one realises that nearly a quarter of a century has slipped by, and that the club has attained its majority. In closing last year's camp report mention was made that the 1925 camp would be the 21st Easter camp of the club, and that there was a feeling prevalent among the members that the 21st Easter camp should be held at The Schoutens.

This has now taken place, and for the fourteenth time it falls to my lot to give a general account of the Easter outing. Dr. Elliott, to whose energy and labour the club's foundation was largely due, was the honorary organiser of the first seven camps (1905-1911), whilst the task of organising the remainder has fallen to the writer, who desires to take this opportunity of thanking all those who through the years that have gone have done what they could to assist the club, its general activities, and its Easter outings. Whilst making this expression a general one as regards all, one feels that the members themselves would be the first to regret, unless particular mention was made of the work done for the club since its foundation by Mr. L. Rodway, C.M.G., who has been a constant attendant at all the meetings, and strong supporter at all times.

The club is in a strong position, and the re-publication of the "Tasmanian Naturalist" is another notable event of the club's "coming of age."

Retrospective thoughts recall many incidents of past camps, scenes of sunshine and storm, of sun-kissed waves and rocky cliffs, of snow-white beaches, and the pine-clad shores of mountain lakes,

and perhaps above all the cheery camp fire around which during the past years have grouped various parties, all cheerful lovers of the Great Open Way, Good comrades all, and a regretful thought creeps in when one recalls memories of those who no longer join our camps, for the hand of time has not forgotten that men are mortal. Their loss we regret, but memories of their kindly acts constantly recur as incidents relative to camp life recall visions of the past and of the trips from 1905 to 1925.

An outline list of such trips gives the following information:—

1. 1905—Bream Creek, camping party	9
2. 1906—Cole's Bay (Freycinet Peninsula), ditto	40
3. 1907—Little Taylor's Bay (S. Bruny), ditto	25
4. 1908—Soldier's Point (Maria Island), ditto	27
5. 1909—Wineglass Bay (Freycinet Peninsula), ditto	\$4
6. 1910—Cole's Bay	97
7. 1911—Southport	60
8. 1912—Darlington (Maria Island)	69
9. 1913—Safety Cove (Port Arthur)	50
10. 1914—Wineglass Bay	100
11. 1915—Darlington	36
12. 1916—Eaglehawk Neck	36
13. 1917—Wedge Bay	35
14. 1918—Safety Cove	38
15. 1919—Eaglehawk Neck	39
16. 1920—Safety Cove	47
17. 1921—Adventure Bay	41
18. 1922 Adventure Bay	49
19. 1923—Lake Fenton (National Park)	30
20. 1924—The Narrows (Frontier's Peninsula)	40
21. 1925—Schouten Island	30

It might be mentioned the club was founded in 1904, and of the 40 original members the following have given continuous support to the club:—Messrs. J. W. Beattie, R. A. Black, A. L. Butler, C. H. Elliott, E. A. Elliott, Clive Lord, W. L. May, A. R. Reid, and L. Rodway.

In selecting The Schoutens, which is the name generally given to Freycinet Peninsula (Schouten Peninsula) and Schouten Island, for the 1923 camp there were several objects in view. Firstly, at Easter time there is a better chance of fine weather on the East Coast than localities more in the south-west. Secondly, the memories of former camps amidst the scenic charms of the granite hills of The Schoutens exercised a great effect. Added to these was the recollection that last year we camped amidst surroundings made historic by the fact of Tasman's expedition and were privileged to study them, whilst the round mountains of the Freycinet Peninsula, being the Vanderlin's Islands of Tasman, promised that a visit further north would permit the localities visited by early explorers to be further examined.

With such allurements the committee felt that, in spite of expense (post-war conditions) of such a trip that members would rally in support, and the response to a preliminary circular was particularly encouraging. The s.s. Koomeela, a vessel of 200 tons, was chartered for the five days, and other arrangements entered into. In the light of previous experience, it was considered necessary to limit the number of members to 50, and also, in order to ensure their comfort, to strictly limit the proportion of lady members. It is with regret that several of the latter had to be refused owing to the available positions being over-applied for.

Thursday, April 9, at midnight, saw the members all aboard the Koomeela, the ladies being accommodated with bunks in the saloon, whilst the men folk showed the benefit of their previous experience by making comfortable "possies" in the various sheltered situations available on the steamer. One party rigged a tent fly over the large lifeboat, and formed quite a comfortable camp.

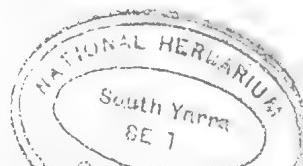
As frequently happens nowadays, the stokehold complement was not complete

at the appointed starting time, but eventually a start was made, and during the whole of the trip the skipper (Captain Howells) and crew did everything possible for the comfort and enjoyment of the party. The steward (Mr. Parkinson-Cumine) worked particularly hard in order to make the journey a pleasant one for the lady members of the party.

Dunalley was reached soon after day-break, and the canal safely negotiated. Passing through The Narrows, the sight of our last Easter's camping place served to revive memories, and in a short time we were out in Marion Bay, where the heave of the open sea indicated that we were well on our way up the coast. Ahead loomed Maria Island, whilst out to starboard in the misty early morning light appeared the rounded outlines of the higher hills of The Schoutens.

Breakfast was served whilst passing Marion Bay, and some time later a stay of a few minutes was made at Maria Island. This eastern isle has a most interesting history. Discovered by Tasman in December, 1642, it was so-named after the wife of Anthony van Dieman, the Governor of Batavia. Over a century later Marion Dufresne's expedition sighted the isle, and his boats may have landed upon it; whilst Captain Furneaux (who anchored in Adventure Bay in the following year, 1773) mistook Tasman Peninsula for the Maria Island of Tasman, and it is due to this fact that much of the confused nomenclature of South-Eastern Tasmania is due. Cook (1777) failed to notice the error, but Captain J. H. Cox in the brig Mercury spent some time anchored in Oyster Bay, which he named (and which is now generally known as Chinaman's Bay) in 1789. Others of the early explorers noted the island, but the first to improve upon Cook's rough survey were the members of Baudin's expedition in 1802. They made a comprehensive coastal survey, and named most of the prominent headlands and bays.

Even before the settlement of Tasmania in 1803 the island had undoubtedly been visited by whaling and sealing vessels. For instance, on March 10, 1802, the French exploring vessels sighted a ship in Bass Straits, which was on the way to Maria Island to catch seals.





IMPORTANT PEOPLE IN THE CAMP ITINERARY—THE CHEFS.



OFF FOR THE DAY.

Following the initial settlement of the island, the locality became more frequently visited, and probably many vessels called in there for shelter, quite apart from those of the sealing and whaling order.

In the early days Tasman's designation seems to have been forgotten by the seafarers who visited it, as it is frequently referred to as Oyster Island, probably on account of Cox naming the bay on its south-western side Oyster Bay.

Just a century ago (March, 1825), a penal establishment was founded on the island, and particular attention was given to the growing of flax. In 1830 a woollen factory was built, the product being valued at 8s per yard, an average of 100 yards weekly being the output. In addition 4000 pairs of shoes valued at 4s per pair were made. Several out-stations were also created. However, the authorities were not satisfied with the progress of the settlement, and soon after the founding of Port Arthur (1831) the settlement was vacated.

In 1841, when Lord Stanley's probation system came into force, the station was again occupied. In 1845 there were six hundred prisoners on the island, but conditions were by no means satisfactory, and it was finally vacated as a convict station in 1850.

During the eighties of last century a further era of prosperity was granted to the island owing to the development work undertaken by the Maria Island Company. For a few years great prosperity reigned, but again there was a period during which the population of the island dwindled to small numbers, the majority being engaged in pastoral pursuits.

During recent years, largely owing to the efforts of the late Signor Bernacchi, who had large interests in the former company, development work once more proceeds upon the island. Large cement works rise above the old buildings of Darlington, and the hum of modern machinery is in the air.

After we left Maria Island a course was shaped for The Schoutens. Half-way we passed a small rocky islet, generally called White Rock. This is the Isle de Phoque (Isle of Seals), having

been chartered and so named by Baudin's expedition in 1802.

The granite hills of Schouten Island and Freycinet Peninsula were now becoming closer, and preparations were made for landing. Shortly after 1 o'clock the anchor was dropped in a quiet bay on the north-west side of Schouten Island. The advance party were ashore in quick time, and were met by Mr. Fergusson, the lessee of the island, who had kindly granted us permission to camp there, and who, with Mrs. Ferguson, did everything possible to make our stay a pleasant one. Particularly welcome were the tracks which had been cut and the waterholes opened up.

A site was selected for the camp, and as boatload after boatload of impedimenta came ashore it was a task for "all hands and the chef" in order to get the camp fitted up before nightfall. Soon these tents began to spring up, smoke arose from the galley fire, a wireless mast arose above the trees, and not much remained to be done when the lusty, if not musical, sounds of the dinner gong—or rather petrol tin—summoned all hands to the evening meal.

In the evening there was a certain amount of straightening up to be done, and most members sought Blanket Bay at an early hour, while others listened to the loud speaker giving forth a Sydney concert. Whilst chatting around the camp fire plans were made for the following days, provided weather conditions held good, and it was decided to visit certain portions of Freycinet Peninsula, which extends southward from the mainland towards Schouten Island. The mountain ranges, such as the Hazards, run from east to west, and as the land between the groups is very low, the peninsula from a distance appears to consist of a number of islands. As such it appeared to Tasman when he coasted northward in 1642. He chartered Schouten Island naming it in honour of Justus Schouten, a member of the Council of India. To the Peninsula he gave the name of Vanderlin's Islands, thinking that they were separated from the main.

From the time of Tasman until Baudin's expedition in 1802 very little attention appears to have been given to this portion of the coast. During the

time that the French vessels were anchored in the vicinity of Maria Island, four boat expeditions were sent out. One circumnavigated Maria Island; the second, under the command of the elder Freycinet, examined that part of the coast between Cape Bernier (which they named) and Capo Frederick Henry. The third expedition, under the command of Freycinet the younger, surveyed the coast from Cape Bernier northwards until opposite Schouten Island, whilst the fourth boat, under the command of Hydrographer Faure, explored Schouten Island and the vicinity.

The last expedition coasted along the shore till abreast of Cape Bourgainville, and on the morning of the following day, February 20, they steered towards what they took to be the first of the Schouten Islands of Tasman, but found this to be only a small rocky island, which they named Isle de Phoque on account of the number of seals seen there. At 4 o'clock in the evening they landed near the south-western cape on Schouten Island, which cape they named Cape Faure in honour of the leader of the boat expedition. East-south-east of Cape Faure were noticed seven small rugged islets, which the French named Taillefer Islands.

The following morning was spent in surveying the western coast of Schouten Island and investing Geographe Strait, named in honour of their vessel. After crossing the strait the French made north in the endeavour to find a further strait which separated the Vanderlin Islands of Tasman from the main; but, finding no passage, they were obliged to return to Geographe Strait on the 23rd. Owing to stress of weather the boat was forced to spend some time in a small inlet on the southern extremity of the peninsula, or what was then deemed to be the second of the Schouten Islands. M. Bailli, who accompanied the expedition, wrote as follows:—

"High granitic mountains, the summits of which were almost entirely naked, form the whole of the eastern coast of this part of Diemen's Land; they rise suddenly from their base; the lands which unite them to each other are extremely low, and imperceptible a short way out to sea. To this singular

constitution is undoubtedly owing the errors of those navigators by whom we had been preceded in these parts, and by whom those mountains were mistaken for so many islands. We have before remarked that the eastern shore of these pretended islands is steep, wild, and fertile, and that of the west, low, pleasing, and covered with wood. This contrast, noticed as well by my friend M. Peron in the Island Maria, is assuredly a consequence of the same physical cause. This part is also occasionally inhabited by men, for in many parts we distinguish vestiges of fires and meals."

Later the boats proceeded northwards parallel with the western coast. Owing to a severe storm they were forced to shelter to leeward of a small island, to which the French gave the name Refuge Island. The survey of the coast was completed on the 25th, and as a result of the different observations the following conclusions were embodied in the explorers' account of their excursions:—

"1st. That of the five islands marked on charts hitherto under the domination of Schouten, one alone has actual existence.

"2nd. That the coast which extends from the north cape of this island of Schouten to lat. 41 deg. 6min. S. constitutes a new peninsula, to which we have given the name of Freycinet Peninsula.

"3rd. That no other channel or strait exists but that between Schouten Island and Freycinet Peninsula.

"4th. That the whole space comprised between the pretended Schouten Island and Diemen's Land forms a large and very handsome bay, denominated Fleurieu Bay, in honour of the illustrious savant to whom France and its navy are indebted for so many valuable works.

"5th. That Diemen's Land, previously aggrandised us by the addition of the peninsulas Tisman and Buache, is still further enlarged from our last survey by the adjunction of all the Schouten Islands, one only excepted.

"Finally, these results from these different conclusions, that our survey minutely comprehends all the geographic detail of this part of Diemen's Land, that it may be looked upon as one of



THE CLIFFS AT MARIA ISLAND.



AT MARIA ISLAND.



OFF TO THE KOOMEELA.

the most complete that could be made on a similar expedition."

Connecting up these observations with the notes made during the 1924 camp gave a good idea of the early exploration of Tasmania's eastern coast and served to explain much of the nomenclature which would have offered speculation if the explanation had not been given, and the early history was an added item of interest to the locality—a spot already rich in interests for both the lover of beautiful scenery and the naturalist desiring to investigate its geology, fauna, flora, or other branches of natural history.

The camp was early astir on Saturday morning, and after breakfast the boats were engaged in transporting the members aboard the Koomela for a trip along the western coast of Freycinet Peninsula to Cole's Bay. As we steamed northwards the peculiar shape of the high granite mountains formed ever-changing outlines, and the whole panorama completed a scene of much picturesque beauty. Opposite Refuge Island (now often referred to as Hazard Island) the low isthmus between Fleurieu Bay and Thouin (or Wineglass) Bay, was noticed, while turning the point to the north of this, Cole's Bay was entered, and nestling at the foot of the Hazards was noticed the quiet beaches of Meredith's Cove, or "The Fisheries," where in years gone by the members of the club had camped. We anchored in the north-east corner of the bay, near the terminus of the proposed Cole's Bay railway, constructional works in connection with which could be noted ashore.

After lunch various excursions were arranged to places of interest, whilst several parties used the boats for fishing. A pleasant day was spent, and darkness was falling by the time camp was reached, where all did justice to the welcome fare which the chef and his assistants had ready. During the evening the camp-fire, wireless news, gramophone concerts, to say nothing of the supper parties, provided a pleasant setting to an autumn day that will long be remembered.

The following day the majority of the members again boarded the Koomela in order to visit Thouin (or Wineglass Bay). This picturesque eastern

cove was charted by the French in 1802 and named Thouin Bay in honour of a French botanist. The more generally used name, "Wineglass Bay," was bestowed apparently at a later date owing to the peculiar shape of the bay, which expands after passing the guardian granite cliffs at its entrance, and spreads out fan or wineglass shaped. The bay itself, with its long arc of white beach, composed of minute granite pebbles, the colour of the Oyster Bay pines and eucalypts which fringe its shores, and the background of towering granite peaks, which ever change in colour according to the angle of the sun's rays, is a picturesque gem which might well take the central setting in the crown of Tasmania's noted scenery. Certain of the rugged western mountains may be more imposing in their massive grandeur, whilst the waterfalls and fern gullies of the denser forests have also their charms, but as a scenic gem Thouin Bay will always hold its own. Seen in the early morning, or at sunset, when the sun's rays are tipping the red granite peaks with shades of rose and at the same time forming deep purple shadows in the clefts and chasms which exist amidst the boulders, in order to vie with the greenish white-tipped rollers which surge in from the sea, the scene is one which lingers for years and serves to lend a charm to Freycinet Peninsula as regards the romantic beauty of its coastal bays.

As we progressed on our northern course in order to visit once more this bay, which has been the scene of former camps, a northerly breeze made matters rather rough for a while, and whilst all were in agreement with regard to the fine coastal scenery, there was a certain diversity of opinion with regard to the state of the weather. After rounding the Lemon Rock the quiet waters of the inner bay was soon reached, and parties were landed at the north-east corner of the bay, where on a large granite boulder lunch was partaken of in the shade of a stately eucalypt. In the upper branches of the tree there was an immense nest of the sea eagle (*H. leucogaster*).

After lunch many of the party walked round the bay to Quiet Corner—the

scene of our 1909 and 1914 camps—others indulged in surf bathing or in collecting around the shore. There was much of interest, including some old aboriginal kitchen middens, and from these some examples of the chipped stone implements of the extinct Tasmanian aborigines were obtained. Upon returning to the steamer it was found that the fishing parties had met with fair success, the nets yielding some fine trout-peter.

On the homeward way considerable interest was aroused owing to the activities of shoals of dolphins which surrounded the boat and performed numerous "stunts" under the bows in view of an interested audience. Next day numerous parties were arranged to visit different localities on the island, for up to the present, apart from some early morning visits to Bear Hill, and some excursions inland by some of the ardent botanists, we had not done much exploration work on the island. Bear Hill deserves its name owing to the shape of a large granite boulder, somewhat resembling the shape of a bear. Seen from the sea, this rock stands out on the skyline like an immense bear ascending the hill. Further visits were paid to this peak, and also the higher mountains further inland. From any of these high points splendid views could be obtained of the island and the peninsula, with its serrated shores and twisted outlines.

Around the coast of the island there was also much of interest, and the ethnologists of the party spent some happy hours amidst the sand dunes, where the wind is moving back the dunes, exposing large areas of the old aboriginal kitchen middens and camping grounds, with the result that numerous stone implements, etc., can be gathered. Towards evening the parties began to wander back to camp, many of them rather heavily laden, particularly the geologists and the searchers of the sand dunes.

At the evening meal the chairman of the club (Dr. W. L. Crowther), on behalf of the members, briefly traced the history of the club's camps, and made particular reference to the great support given to the club by Dr. Pulleine, who of late years had come all the way from

Adelaide for the purpose of attending the camps, and who had this year given other very welcome support in aid of the excursion. The chairman also extended the thanks of the club to Mr. and Mrs. Fergusson for their kindness, and to the skipper and crew of the Koomeela for the manner in which they had entered into the spirit of the outing and done everything possible for the comfort of the party. Several other members were called upon to speak, and some amusing incidents in connection with certain of the earlier camps were related.

After the usual camp-fire concerts the party assembled for a farewell supper party, and it was a late hour before "Auld Lang Syne" brought proceedings to a temporary close, for it was not many hours before music was again heard. Early on Tuesday morning, in the first dull light of an autumn dawn, a lively serenade warned the campers that the island holiday was over, and the time had come to depart. Willing hands soon reduced Canvas Town to an accumulation of bulky packages, and by 6.30 the "chug-chug" of the motor boat announced that the first load was on its way to the ship. Breakfast was soon over, and the dining tent, galley, etc., dismantled, and almost to the agreed minute (9 a.m.) the last boatload reached the ship, and the clatter of the wine-cases gave warning of an early departure.

A farewell wave to our friends of the island, a short westward run to avoid the black reef, and then members settled down for the run to Maria Island. Looking astern, the kelp-fringed shores of the island gradually receded, and there were universal regrets that time did not permit of a longer stay, for although the past 20 years have seen some jolly camps, the "coming of age" event will ever hold its own in comparison with the other outings.

About half-way to Maria Island we passed close to the Ile de Phoque. Here numbers of seals were noticed on the rocks, and a sharp blast of the steamer's siren sent them scrambling for the sea. These seals are a species of the Southern Fur Seal. In the early days of Tasmania sealing was a profitable industry, but, like many other natural assets, the industry was not conserved, and



AMONG THE GRANITE BOULDERS AT SCHOUTEN ISLAND.

was allowed to be destroyed by excessive hunting.

Unfortunately, the powers that be have failed to date to recognise adequately the economic value of our native fauna, and the present era gives every indication of affording future generations food for criticism concerning such want of recognition of either the present position or the lessons of the past. A crumb of comfort is provided, however, when one recalls that future historians will find that down through the years the Tasmanian Field Naturalists' Club was doing all in its power to bring home to the authorities in particular and the public in general a true appreciation of the value of our natural assets. A further example of the foregoing was afforded to us a few hours later, when, on stopping at Maria Island, a visit was paid to the world-famous fossil cliffs. It will be remembered how the club tried to preserve the most interesting portion of the cliffs—a small projecting headland of great scenic charm, and of such intense geological interest that it has been remarked upon by visiting scientists from all parts of the world. When the Government granted mining rights over a large area of the island this small headland might well have been reserved. It was not. And in spite of all the club members could do, the greater part of this most wonderful asset has been ground to dust. Trucks now run over the ruins of the point, drills and blasting powder are quickly reducing the remnants to metal, to be hurried away to the factory at Darlington and reduced to cement.

If this point had been reserved in the first instance no hardship would have been done, and a small cutting would have permitted the company to get their material from the main face of the cliffs, which extend over a very considerable distance. The commercial side would have been satisfied, and future generations of Tasmanians would have been the richer owing to the possession of a national asset of wonderful interest. As usual, however, immediate profit appeared to be the only consideration, and future historians were supplied with further data for criticism of the short-sighted actions of the present generation.

Darlington at present is thoroughly in the throes of another period of commercial activity, and as one's mind wanders back one wonders if the present venture will prove permanent and profitable, or merely prove another layer in the alternating bands of feverish commercial activity and quiet pastoral pursuits which give such an interest to the history of this eastern isle, and particularly the township of Darlington. Along the shores of the creek the advancing autumn was having its effect on the English trees which fringe the original settlement, which, although altered very considerably of late years still shows traces of the olden times, and one can visualise the past—the days when Smith O'Brien wandered forth along the shore, his thoughts of a green island on the shores of the North Atlantic or of Hohepe Te Umaroa, looking up to the surrounding hills and recalling many of the New Zealand mountains to which he was destined never to return. A headstone in the little cemetery on the point marks the site of the final resting place of this Maori chief of the old regime. Three of his companions were enabled to return to the land of their birth, but death claimed Hohepe ere his freedom was granted.

Leaving the island after a most interesting stay of three hours' duration, we headed for Marion Bay and the Canal. A strong westerly breeze caused some delay, and entering The Narrows the gale was threshing the waves into a sheet of white water. Darkness fell just as we reached the canal, and weather conditions generally were such that it was deemed inadvisable to attempt to get through. When the decision was conveyed to the campers, there was an outburst of cheering, and preparations were made to make the best of conditions as they existed. The ladies were supplied with bunks, and a few of the more seasoned campaigners found excellent quarters. The remainder constructed various "possies," and made things as comfortable as possible. At daylight we were under way, and with some minor adventures got safely through the canal and shaped a course for home.

Town was reached shortly before mid-day. Our return was a little later than anticipated, but nevertheless it was a cheery party that disembarked and once more linked up with the everyday life of the city.

So the twenty-first Easter camp came to an end. The autumn days spent on the isle are but a memory of one of our happiest outings. That the camp was a success was due to many causes. The weather was generally favourable, experience of past trips was behind the outing, our camp chef (Mr R. G. Parker) and his chief assistant (Mr V. Molross) and the junior helpers (Messrs. E. and A. Matthew) were so efficient that the only complaint received was that of a member who during the course of the rough trip round the Lemon Rock refused to partake of crayfish and other suitable refreshment of a like nature.

Finally, and most important, was the

general spirit of good comradeship which existed from the very commencement of the trip to the end, as well as the support given in many directions by members both before and after the excursion. As an example of the latter one would like to mention the kindly assistance of Mr. J. S. Braeden, who, although unable to join the camp, has given considerable time to the preparation of lantern slides of the outing. With such good comradeship existing, the promise for the future is bright. The club has definite ideals, and the attainment of our majority should lend greater impetus to our work, whilst in no wise diminishing the holiday spirit when taken charge during the days when we foregather each year amid the glories of nature in one or other of the numerous beautiful settings which nature has granted Tasmania, but which so few Tasmanians really know.



A SECTION OF THE CAMP.

BOTANICAL NOTES

By L. RODWAY, C.M.G.

To one who has been living amongst the vegetation of Southern Tasmania for some time it came as an agreeable change to roam amongst the plants of Schouten Island. It appeared almost as if the flora was that of a separate country, so different is the verdure from that of the south and west. Distribution of plants is not yet well understood, but very probably soil and precipitation are two potent factors. As very few of our native plants have popular names, we shall have in these notes to be satisfied with their scientific appellations.

The ubiquitous gum tree was ever-present. The forms which made up nearly the whole of the forest were varieties of peppermint. The whole of the island except the seashore and granitic heads of hills was covered by open forest; that is, forest not forming close canopy and allowing a considerable growth of shrubs and herbs due to the penetration of direct sunlight. The peppermints are slow-growing trees, but which can live on poor dry soils. They get smothered by the more robust types in better and wetter localities, yet if they are small and of slow growth they make up for this by producing a timber of great durability.

Besides eucalypts, the only trees noted were she-oak, which was in great quantity, and promises a good return when harvested, and Oyster Bay pine (*Callitris tasmanica*).

Amongst the pea-flowers the Running Postman (*Xennedya prostrata*), with its crimson flowers, was creeping everywhere; so also was *Platylobium triangulare*, with its acutely triangular leaves. *Gompholobium huicelii*, with its pale foliage and sulphur-coloured flowers, was common, so also was *Glycine clandestina*, a little trifoliate twining amongst the undergrowth. Two sundews were very common, namely—*Drosera binata*, with leaves like a tun-

ing fork, and *Drosera spathulata*, with a rosette of dark red spatulate leaves at the base of the erect flowering stalk. There were two interesting species of the Sterulea family, very common, *Spyridium eriocephalum*, chiefly peculiar because the flower head is subtended by two spreading pure white bracts, which look very like petals; and *Lasiopetalum dasypodium*, which somewhat resembles our common Dogwood. A rather scarce member of the Boronia family, namely, *Eriostemon hildebrandii*, was plentiful. A parasitic plant, *Cassytha melantha*, covered many sheoaks with a coarse, stringy growth. It is often called mistletoe, because of its parasitic habit; but it is no relation of the true mistletoe. Strange it may seem, but *Cassytha* belongs to the true laurels. Composites were not numerous, but the fine everlasting, *Helichrysum bracteatum*, occurred along the coast. The heath family was poorly represented. Cranberry was common, so was the coastal currant, *Leucopogon richei*, while the rare Tasmanian *Pentachondra involucrata* was gathered about the tops of the mountain peaks.

Amongst lower plants, a small cutting grass, *Gahnia microstachya*, was everywhere. Ferns were not various. The commonest was the wire-fern *Gleichenia dicarpa*, which in some places grew into a cristate form. The common heath fern, *Lindsaea linearis*, was robust, while the far from common *Schizaea bifida* occurred occasionally.

Mosses and fungi were very poorly represented, but the algae was well supported by its giant amongst seaweeds, Floating kelp, known to science as *Macrocystis pyrifera*. The Oyster Bay pine above referred to really is not a pine, but a cypress. Unfortunately its growth is too slow to warrant its being used in afforestation work. Its timber is good, but small.

GEOLOGICAL NOTES

By A. N. LEWIS, M.C., LL.M.

Schouten Island has been known for the last hundred years to be of great geological interest, and the members of the camp looked forward to a variety of geological studies in some respects unusual in Southern Tasmania. They were not disappointed. The granites proved a source of interest that could not be exhausted in many months. In addition there were coal measures and a variety of tectonic and physiographic features of interest. Only one day was available for the pursuit of geological studies on the island, but the few hours spent at Cole and Wineglass Bays were by no means wasted.

Schouten Island has the distinction of being the subject of the first paper read before the Royal Society of Van Diemen's Land by Dr. Joseph Milligan, the society's first secretary, at its first meeting on August 16, 1848. It was then one of the known coal fields of Tasmania, and Dr. Milligan reported on its possibilities as a coal producer. A mine had been worked for several years, but had been closed down for some time prior to 1848.

The eastern half of the island is of granite, and the western half of coal measures intruded and overlain by dolerite (diabase). At Maria Island the granite is to be seen beneath the permocarboniferous strata. It is safe to say that the coal measures occupy a position stratigraphically about 2000 feet above the top of the granite. To-day they are to be seen over a thousand feet below the top of the higher granite mountains. This indicates a fault on a major scale. The line of the fault is clearly distinguished, both from a distance and from close at hand. The western hills, composed of dolerite, are gently rounded in contour and covered with a thick growth of fine gum trees. The eastern half of the island is a

jumbled mass of ragged granite crags, with bare escarpments everywhere, and very stunted vegetation growing only in crevices. . .

The fault runs across the island through the gap behind Mr. Fergusson's house. It has an angle of hade of about 10deg. to the westward. Seldom can a more perfect example of ground evidence of a fault be observed. From the top of the ridge in the centre of the island (here about 750 feet above sea level) a small creek bed descends down the hill in a north-westerly direction. There is a quantity of rubble a couple of feet wide in its bed, then on the right bare granite rocks, and on the left the dolerite hillside rise steeply. The creek runs steeply down hill for 400 feet along this fault, and not once does the nature of the rock on its right bank and on its left alter, neither trespass into the preserves of the other. Half-way down the hill the stream turns to the north-east, and leaves the fault, but the junction between the granite and the dolerite can be seen still following the same line.

This fault can be traced north along the western shore of Schouten Peninsula. The point south of Hazzards Bay is composed of dolerite similarly altered 5000 feet or more in its original vertical relationship with the older granite. The fault can be traced north through the East Coast coalfields, and south through Maria Island, where dolerite seen on the Parson and Clerk, 3000 feet above the base of the limestone, is at sea level at Cape Bourgainville. This great tectonic feature is evidently responsible for the trough now known as Fleurieu Bay. Another fault forming the western side of the bay can be seen in the straight escarpment of Cape Bernier:

No definite indication of the age during which these faults occurred can be derived from the locality under review, but the Schouten Island one is certainly post-doleritic, and much erosion has proceeded since it occurred. Early Tertiary would approximate to the date. The Cape Bernier fault, in common with faults governing the coast of Tasman's Peninsula, have a more recent appearance, and are probably about early Pleistocene.

The coal measures which outcrop round the north-western and western shore of the island proved of interest. Three old shafts can be seen close to the beach. One right on the beach just west of Mr. Fergusson's house, and the second about a quarter of a mile further west, just between two diabase outcrops on the beach and a little east of the sand dunes on the north-west corner of the island. From this latter and past the former a tram line was constructed with, obviously, the expenditure of much labour, to a jetty, now vanished without a trace on the west side of the cove, where we were camped. The third shaft is situated about 100 yards up the largest creek on the north-west of the island, and about a quarter of a mile west of the sand dunes. It was sunk by Bernacchi about 1920, and the timbering is still in good order. Water rises in it to within six feet of the surface, and 50 feet above the sea level, 100 yards away.

Recent earth movements round this side of the island are apparent. The creeks flowing in broad valleys have commenced to cut narrow gulleys in the soft coal measures of these valleys. Obviously the cliffs here are of recent development, and the evidence would be

equally consistent with a recent or Pleistocene faulting in Fleurier Bay, rejuvenating the streams by increasing the slope, or with an uplift of some 100 feet. Probably the former is the more correct interpretation.

Tin is found in these East Coast granites scattered through the rock in tiny crystals. This has led many an optimist to waste time and trouble excavating in the solid granite. Some trenches dug for this purpose exist near the top of Flagstaff Hill, the highest point on the island. But it may be stated as a general proposition, subject only to very rare exceptions, that valuable ores, if they occur at all in these granites, are so diffused that they cannot be recovered unless concentrated. This concentration can only take place by the metal being carried in solution during the intrusion and deposited in some trap, in which case it would be found in veins in overlying slates or schists, and not in granite, or being washed out by streams and deposited in the stream bed. As the tin is heavier than the other component minerals of the granite, it would be dropped early, and may thus be concentrated in sufficient quantities to be worked commercially. Certainly the top of a granite mountain, although not an impossible place, is a most unlikely spot for a mineral discovery.

These rocks are spoken of as granite. Opportunity has not yet presented itself of examining them microscopically, and until it does this nomenclature must be tentative. Time did not admit making a study of the internal structure of the great batholith. This must be work for a future expedition, and should provide most interesting results.

NATURE NOTES

By OLIVE RODWAY

On the trip to Schouten Island many sea birds were to be seen, notably the black-browed albatross (mollymawk), silver gull, the black and white breasted cormorants, whilst round the camp some beautiful prions were observed flying about.

As we dropped anchor in the bay, down in the clear water could be seen the curious little sea-horse, with its prehensile tail, enabling it to anchor itself to any stem.

It moves along apparently without any motive power, with its curious, solemn, long-drawn-out face, and when closely watched it is found that it has the power of moving either eye independently of the other, giving a most comical effect. It reminds one very much of a short-sighted person, as it peers closely at different objects in its search for food. In one of the bays visited were seen penguins swimming along. According to Dr. Leach, these are found up the Pacific Ocean as far as the Equator, but not in the Atlantic or Indian Ocean.

Their distribution supports the geographers in their theory that the Pacific Ocean is the most ancient, whilst the Atlantic and Indian Ocean are more recent. On the shore were found the brown seaweed, like a string of beads, called *Hormosira Banksii*, whilst in the deeper parts were the floating kelp, which in favourable conditions may grow longer than the tallest trees.

Amongst this many fish were taken, chiefly trumpeter, cod, kelpies, flathead; but a few John Dory's were found also. These attain the length of about 18in., and are excellent fish for table purposes, though seldom brought in to market. This fish has a black round mark on its side, and in other countries the fisherman hold it in special respect, as they recognise the mark left by the thumb of St. Peter when he took the piece of money from its mouth.

Shore life was not of much interest, though a good many mutton fish shells were found. The real name of this is ear shell (*Haliotis*), and is found under water on rocks at low tide. The pearly inside part is used for buttons and ornamental work. The shells are very abundant in the aboriginal kitchen middens along the coasts. The sandy beach at Schouten Island is made up of small particles of granite. This keeps very soft, and makes walking difficult, as the feet sink in to it at each step. Numerous quail rose up as we walked through the scrub.

They have very rounded wings, which are suitable for sudden flight, whilst the whirring noise startles an enemy and gives them time to escape. Sheoaks were seen to be fairly numerous, they have a peculiar appearance, all what we call leaves being in reality branches, whilst at the nodes of these will be found rings of small scale-like leaves.

The stomata or breathing holes are sunk deep into the grooves of the branches, and by preventing excessive transpiration enable the tree to stand the effect of drought.

In the gully running up to Bear Mountain was found a good number of ferns, the wire fern (*Gleichenia*) being abundant, whilst a few roots of the heath fern (*Lindsaya linearis*), and *Schizia*, were also obtained. A few specimens of earth stars (*Geasters*) were gathered.

These are formed in the shape of a round ball, and when ripe the outer coat breaks into segments, which turn back, leaving the spores in a central sac.

As the sac gets quite dry the spores are disseminated through a small hole at the top.

The beach at Schouten Island does not seem an attractive place for crabs, as none were noticed there, and very few butterflies were seen. Only one kind of ant was noticed, this being what is usually called the sugar ant.

On the way home, before we reached Maria Island, a large rock was passed, known as White Rock. On the end of this numerous seals were lying, and at the sound of the ship's whistle they made their way into the water by a series of awkward hops and rolls.

Maria Island being reached, a visit was paid to the once famous Fossil Cliffs, now a scene of desolation. A number of fossils had been collected by the workmen, and several members of the F.N.C. obtained some of these.



A GROUP OF THE MEMBERS AT SCHOUTEN ISLAND.

ORNITHOLOGICAL NOTES

By CLIVE E. LORD, F.L.S.

On a sea voyage birds are of interest always. They add life to the great open spaces of the lone sea lanes, and serve as a connecting link with distant shores, for the home of all bird life is the land. Even the widely spread albatrosses, kings of the air, and of the storms of the oceans, return to land to breed. In several places around the Tasmanian coast they congregate in hundreds at certain seasons of the year. The aquatic penguins struggle ashore and climb amidst the dunes to form their nesting burrows in much the same way as do the mutton birds or short-tailed shearwaters, although the latter's method of reaching land is the direct contrast of the former, for the mutton bird arrives at dusk—flying with airplane speed.

During the course of our Easter excursion we saw examples of all the above-mentioned birds. Steaming down the Derwent in the grey hours preceding an autumn dawn the sharp bark of the little penguins (*Eudyptula minor*) told of their presence. Penguins claim many unique characteristics. Their wings, reduced to swimming paddles, the lack of feather tracts, their ability to swallow their food under water—these and other features mark the fact of their peculiar evolutionary trend. It is upon such changes that our system of classification is based.

In Tasmania nineteen orders of birds occur, which orders are divided into the various families, genera, etc., rendered necessary by the structure and habits of the various species.

The game birds, or Galliformes, fall naturally near the penguin group, and were fortunate enough to see large numbers of one species belonging to this order, for brown quail (*Synoicus Australis*) were plentiful on Schouten Island, and coveys were disturbed continually amidst the grass and the sand dunes. Schouten Island has been declared a sanctuary under The Animals and Birds Protection Act. It follows that it is an offence to take a gun on to the island, but, as with all such reserves, a sanctuary can never expect to be a sanctuary in effect as well as name until such time as there is a permanent ranger in charge.

In reference to the large and varied group which comprises the sea birds generally, various kinds were noted, but many at too great a distance to identify specifically. In addition to those already noted, the black and white (*P. fuscicollis*) and the black cormorant (*P. carbo*) were common. Amidst the shoals of surface swimming fishes, gannets (*Sula serrator*) were to be seen continually diving to take their toll from the waters, but although a look-out was kept, we failed to notice any pelicans upon the sandspits at "The Narrows" where we had seen them last year. Crested terns (*Sterna bergi*), silver gulls (*Larus novae-hollandiae*), and Pacific gulls (*Gabianus pacificus*) were evenly distributed all around the coast, as well as being familiar objects in the bay upon the shores of which we formed our camp. Wading birds, with the exception of dottrells and oyster catchers, were not

plentiful, but the graceful outlines of several white-fronted herons formed an added attraction to the shoreline.

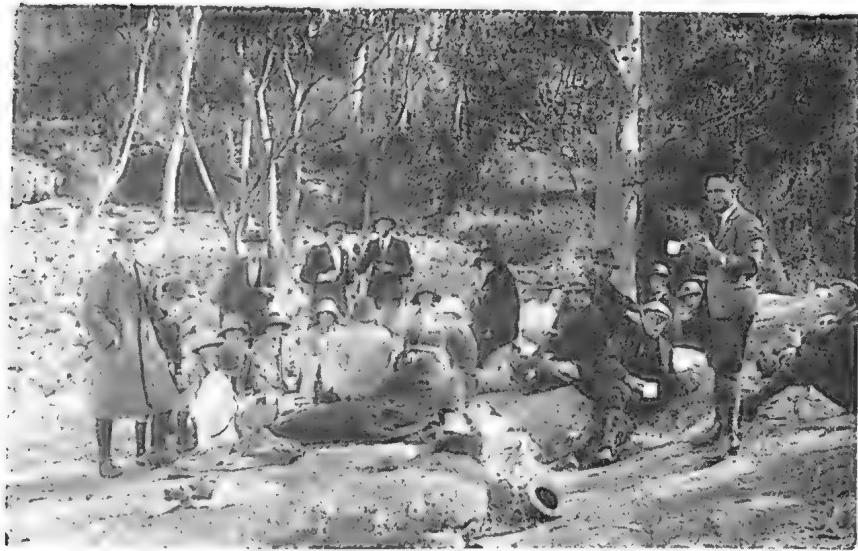
Further north, at Coles Bay, black swan were seen, these being probably stragglers from the main flock at Moulting Lagoon, where in the nesting season thousands of these birds congregate to breed. At Wineglass (Thouin) Bay, a large nest of the sea eagle (*Haliastus leucogaster*) provided an object of interest, and around most of the bays this species could be seen. Not many other birds of prey were noted, but the spotted owl could be heard calling in the evening amidst the trees in close proximity to the camp.

As a contrast to the quiet notes of the owls, numerous parrots would usher in the dawn with their noisy assemblies in the eucalyptis. The green rosella

(*Platycercus caledonicus*) appeared to be the most plentiful of this group.

The perchers (Passeriformes) constituted a large proportion of the observed species. Robins, fantails (*Rhipidura flabellifera*), whistling shrikes, scrub wrens (*Sericornis humilis*), blue wrens (*Malurus cyaneus*), honey-eaters of various species, bell magpies, etc., all scolded to gladden the hearts of the campers and add additional charm to our island camp.

Our stay was far too short to permit of a comprehensive list being made of the island's avifauna on this occasion, but our memories of this Eastern isle are so pleasant that there exists a longing to return. If such wish is realised in the future, time may permit of a more detailed examination of the birds of this interesting region.



LUNCH AT WINEGLASS BAY.

Printed at
"The Examiner" and "Weekly Courier" Offices,
Launceston, Tasmania.



Tasmanian Field Naturalists' Club



EASTER CAMP 1926

at

SAFETY COVE, PORT ARTHUR



GENERAL ACCOUNT

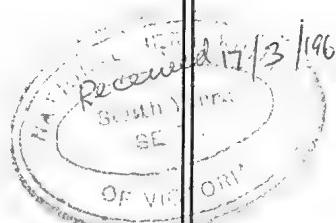
By CLIVE E. LORD, F.L.S.

BOTANICAL NOTES

By L. RODWAY, C.M.G.

GEOLOGICAL NOTES

By A. N. LEWIS, M.C., LL.M.



Tasmanian Field Naturalists' Club

1926 Easter Camp at Safety Cove, Port Arthur.

GENERAL ACCOUNT

By CLIVE E. LORD, F.L.S.

Twenty-two years ago the Tasmanian Field Naturalists' Club commenced its Easter camps. The success which has attended these outings over a series of years is due to several reasons, among which may be mentioned the dual purpose which these camps serve. Not only do they provide means for lovers of nature to visit distant localities and to pursue their studies in these regions, but they serve to bring together members of the club in a social way, and thus assist in forming that spirit of good fellowship upon which so much of the success of any organisation depends. The annual cuttings are well established now, and if the club's efforts to awaken an enlivened interest in Tasmanian natural history are successful, these excursions will provide an opportunity to an even greater number of natural history workers than they do at present.

The camp site this year was Safety Cove, Port Arthur, which locality had been visited by the club on several previous occasions, namely, in 1913, 1918, and 1920. The natural beauties of the district, combined with its historical associations, add to the interest to a considerable degree. In addition the camp site at Safety Cove is an ideal one, and the thanks of the club are due to Messrs. Briggs Bros. for permitting the members to camp on their property.

The party this year numbered 36 all told, six of whom formed the advance party. These latter members together with the camp impedimenta, left Hobart shortly after 9 o'clock on Wednesday, March 31, in the Reemere, and after the trip around Cape Raoul—which had a disturbing effect upon at least one member of the party—the boat was anchored close to the beach off Safety Cove at a quarter to two.

An immediate start was made getting the camp gear ashore, and it was nearly two hours later before the Reemere left the small party, and an immense accumulation of luggage on the

site which was to be our home for the next few days.

A start was made to erect certain of the tents that evening, and a fair amount of work had been done before darkness fell, and the party retired to rest in preparation for a long day's work on the morrow.

Thursday morning found the members of the advance party early astir, and the work of preparing the camp proceeded throughout the day. By midday most of the tents had been set up, but it was late in the afternoon before the camp was complete, twenty tents having been erected, and the various packages of luggage, etc., allotted to their correct designations, and the gallery and dining tent having been set out.

After the evening meal the advance party was enabled to rest from its labours and await the arrival of the rest of the party. Shortly before 10 o'clock the honk of a motor horn on the Port Arthur-road announced the arrival of the main party, and these were soon received in camp, and did full justice to the coffee and hot cross buns which were awaiting their arrival. It was some time later before the various tent parties had settled down in their new quarters.

The following day gave every promise of fine weather, and several excursions were arranged to visit such places as the Remarkable Cave and the Blowhole, which were within fairly short distance of the camp. Other members spent most of the day in camp, as two other parties arrived from town in their own cars; but by the afternoon the camp was fully complete, and all the members had an opportunity of meeting together and discussing the camp site and other items of interest at the time. As regards the exact site of the camp, the tents were pitched at the southern end of Safety Cove, on the small strip of flat land between the sand hummock which fringes the beach and the hill which rises at the



ON THE ROAD TO PORT ARTHUR.

back and so forms a shelter from any westerly winds which sweep across the area on occasions, but this year were conspicuous by their absence.

Along this sandy strip eucalypts and other shrubs assisted in the formation of an ideal camp site, and as there was a plentiful supply of fresh water at both ends of the camp conditions were almost ideal. At the southern end of the bay the encircling hill, curving eastward formed a protecting arm from the south against the long ocean rollers which swept in at the foot of the great sand dunes at Half Moon Bay. Beyond the bay the rounded outlines of Brown Mountain formed a distinctive landmark, whilst further to the west the coastline sheltered such interesting places as the Blowhole, the Remarkable Cave, and other natural wonders. Some miles away the picturesque battlements of Cape Raoul project far into the sea, and the nomenclature of the headland recalls the pilot of D'Entrecasteaux's exploring expedition of 1792.

On Saturday most of the campers paid a visit to Carnarvon, the township of Port Arthur. Much has been written concerning the days of the old convict regime, and much misleading information still continues to be distributed concerning those early days of last century when the general tenor of public opinion was so far removed from what it is to-day.

Of the thousands of visitors who visit this historic spot annually, how many really take time to consider the history of the place in its true perspective?

To begin with, Port Arthur has been lifted far above its correct position in the initial scheme of colonisation of Australasia owing to the publication of such books as "The Term of His Natural Life." The average visitor looks upon Port Arthur as the Alpha and Omega of the era when the British Government utilised its unwanted subjects as the means of opening up new regions for settlement. There were large stations in many other parts of Australia, and even beyond our shores, but these have long been crowded out by the rapid expansion of population. These conditions do not apply in the same degree to Port Arthur, and the natural consequence is that it becomes more and more the Mecca of those who desire to study the methods of the past, some owing to a true historical desire, but many from a merely superficial curiosity.

The true history of Port Arthur yet remains to be written, and much information yet remains to be gathered before this can be accomplished. An illuminating document has recently been drawn attention to by Mr. R. W. Giblin, of London. It is no less than the private journal of Captain Charles O'Hara Booth, who was Commandant on the Peninsula during the period at which the settlement was expanding under the influence of his exceptional powers of organisation.

Mr. Giblin, with the permission of Major Richmond, the owner of the diary, made numerous extracts from the same, and forwarded such extracts for the Library of the Royal Society of Tasmania. Further, he wrote a paper on the subject which was published in the Papers and Proceedings of the Royal Society of Tasmania for 1925, and this paper should be read by all who desire to obtain an insight into the true historical perspective of the Port Arthur settlement.

Many items drawn attention to by Mr. Giblin are worthy of mention; but in the present instance there is but space to mention one or two.

Shortly before leaving England Captain Booth and others held an excursion to see the Manchester train. The novelty of this will be realised when it is recalled that the excursion took place but six years after the opening of the first public railroad in England. As Mr. Giblin remarks, "It is reasonable to suppose that the tramway between Long Bay and Norfolk Bay projected and begun by the Commandant in 1836 owed its origin to the experience gained in Lancashire." Traces of this old tramway can still be seen.

An outstanding feature of the journal is the inner light thrown upon the Commandant's feelings towards his charges. In spite of much that has been written and more that has been said, it is clear that Charles O'Hara Booth, as well as many other officials who were associated with him, treated his charges in a just manner. It must always be remembered, however, that his personal inclinations as regards leniency or otherwise were always made subservient to "the system," that code of rules and regulations laid down by the Home authorities.

One more item, and we will pass on to more recent times. In describing Dr. Browning's visit to the settlement in 1836 the diary contains the following entry:—



IN THE MODEL PRISON.

"4th Oct.—Dr. B. visited Point Puer and catechised, etc. Addressed the prisoners again this afternoon. Got his pocket picked while at Settlement School this evening."

Such days are past, however, and as our party reached the township on a glorious autumn morning the beauty of the bay, with its setting of English trees and Tasmanian eucalypts, far outweighed the thoughts of the past. As a page of history the settlement of Port Arthur and the methods adopted are worthy of the deepest study, but as a means of satisfying a merely morbid curiosity as regards the dark cells and the other Early Victorian methods of prison discipline, such subjects are best left alone. Rather let one's mind dwell upon the natural beauty of the bay, with the reflections of the fringing trees mirrored in its placid surface and along the shore the signs of the present era as they displace those of the past. Time, aided by fire, has done much to destroy the buildings of the old settlement. Many have been converted to other uses, whilst in place of the dull tread of the "human centipedes" the old cobblestones of Champ-street echo to the honk of motor cars. Below the tall walls of the old penitentiary tennis parties are engaged in friendly rivalry, whilst out in the reclaimed area near the old slipyards the cricket ground calls its adherents.

As one looks at the scene which this picturesque bay presents on this present Easter morn one recalls those lines of Browning,

"The past is in its grave,
Though its ghost still haunts us."

The days of the old regime are over, although the mysterious influence of the old settlement grips one whilst within its precincts.

Back in camp within the merry glow of the camp fire and the wireless loud speaker giving forth items from Melbourne, Sydney, or Adelaide at the operator's will, one's thoughts cannot but dwell upon the changes that have occurred within the century. A hundred years ago the settlement of Port Arthur was not even commenced. Today its foundation and influence is a matter of history. O'Hara Booth's rather wonderful series of signal stations have lapsed into decay, and just as the wonder of wireless has displaced the complicated semaphore signals of old Port Arthur, so an enlightened te-

nor of public opinion has awakened in regard to man's humanity to man.

The following day again proved the glory of our autumn weather. The dewy morn gave place to radiant sunshine. Some members set out to visit Mount Arthur, whilst a smaller party again visited the township, others went westward along the shores and cliffs, whilst a further section visited Half-Moon Bay. Those who stayed in the vicinity of the camp spent their time in fishing and to such good purpose that there was a plentiful supply of fish for breakfast next morning.

In the vicinity of the Remarkable Cave there were sights that held the interest of the onlookers for hours. Apart from the glorious weather and the grandeur of the rocky coastal scenery there was a heavy ground swell breaking along the shore, and as the waves broke against the cliffs and outlying rocks they formed an ever-changing scene of true magnificence.

Advancing in serried ranks of blue they combed over on reaching the shore, their tips merged into various green hues, and then broke in a smoother of white foam. As the undertow commenced, and the foam and spray-drift began to fall away from the rocks, there appeared a whole series of most picturesque waterfalls. Such an ever-changing scene in the romantic setting in which it was enacted could not fail to grip the imagination, and those who were privileged to witness it from the slopes of the hillside far above were loud in their praises.

A short distance to the east was the Blowhole—a narrow slit in the rocky ground—out of which every now and again there burst a cloud of spray-drift so fine as to be mistaken for smoke at a short distance away. This was caused by the waves many feet below roaring through the subterranean tunnel, and finishing their shoreward career in a swirl of waters and foam in the confined space of the honeycombed chambers of the rocky caves of the Blowhole, the limited spaces of which are in marked contrast to the Remarkable Cave. This latter wonder of nature is but an immense blowhole, in which both the bowl-shaped opening and the twin tunnels have been worn out by the sea to a very considerable degree. So extensive has been the erosion that at low tide and when the sand has been swept inshore it is possible to walk right through to the outer beach. On one of our previous visits the mem-



PORt ARTiUR AS iT iS TO-DAY.



A PRETTY SPOT NEAR THE REMARKABLE CAVE.

bers played a game of beach cricket at the outer entrance to the cave, but such would not have been possible on the present occasion.

Still further to the east, beyond the Blowhole, the rounded outline of Brown Mountain reaches south towards the sea, and terminates in a bluff headland of diabase cliffs which descend hundreds of feet sheer to the sea. Wandering across the moorlike country which is so characteristic of the coastal strip around Safety Cove the liquid notes of the yellow-winged honeyeaters call incessantly from the numerous patches of scrub. Occasionally certain of the ground feeding birds are aroused, and as they rise with a whirr from almost at the feet of some of the party there is another interest added to the moorland trail, above which a sea eagle planes across on his way to search the shores of the cove for such edible morsels as the waves have cast upon the sands.

At the summit of Brown Mountain the cairn, like many of the other cairns on our mountain tops, is being allowed to fall to pieces. From here a fine vista of the shore line and harbour unfolds itself; the picturesque setting of Port Arthur is seen to good advantage. For a closer view of the settlement itself there is perhaps no better viewpoint than that on Scorpion Rock, the hill just above the church; whilst for an even more extended panorama of the peninsula settlements a visit can be paid to the summit of Mount Arthur, which is not far from the township. On the summit can be seen the foundations of one of the old semaphore stations. Several parties from the camp paid visits to this and other vantage points. On Easter Monday practically all the members visited Half-Moon Bay, a silvery arc of sand facing the ocean and bounded on the west by the great rounded dome of Brown Mountain and on the east by the long point which separates this outer bay from the inner and quieter waters of Safety Cove. The long ocean rollers end their northward journey here, and the massive sand dunes which fringe the shore testify to the forces which are at work on this section of the coast.

These dunes, with their steeply-inclined faces on the seaward side, ever prove a fascination and within a few minutes of the arrival of the parties at the bay there was great activity as regards sand sports. The various slides and other exercises carried out on the slopes recalled visions of the

winter sports of our Tasmanian Highlands, where snow takes the place of sand. Tasmania has much to offer in the field of winter sport, but up to the present little has been done to encourage interest. The National Park Board has done and is still doing all that it can with its limited resources in order to open up a winter tourist traffic to our highlands, but more needs to be done by the larger departments of the state.

Much of the initial credit as regards the commencement of winter sport in Tasmania is due to Mr. E. T. Emmett, formerly Director of the Tasmanian Government Tourist Bureau, it is a matter of great regret that Mr. Emmett no longer personally controls our tourist traffic, and the policy of transferring his enthusiasm and expert knowledge of the tourist attractions of our island state to another sphere is open to criticism, as in more ways than one it has meant a loss to the state.

The sand slides of Half Moon Bay provide just as invigorating exercise as the snow slopes of Mount Field, and after an hour or more of these, the members assembled for lunch with both appetites and wits sharpened, for it would have been difficult to imagine a merrier party than that which assembled for lunch under the shade of the casurinas which fringe the shore.

After lunch visits were paid to several places of interest in the near vicinity, and the various groups all returned to camp in ample time for the evening meal, which Chef Parker and his assistants had prepared in their usual efficient manner. At the gathering an opportunity was taken of thanking Messrs. Briggs Bros. for their kindness to the campers during our stay at Safety Cove, and, in addition, other remarks were made, all of which went to show that the twenty-second Easter Camp had been enjoyed by all. The perfect weather experienced, in addition to other considerations, greatly assisted in this direction. Except for a slight misty shower of about an hour's duration on Monday evening the weather was perfect during the whole currency of the camp.

Owing to the excellent manner in which the wireless worked, the usual camp-fire concerts gave place to concerts and lectures broadcast from Melbourne. One evening we had the pleasure of hearing Dr. J. A. Leach lectur-

ing concerning bird life. Our thanks are due to Mr. Philip Medhurst for the trouble which he took in bringing his wireless set to camp, and in working it in such an excellent manner.

Tuesday morning was spent in breaking up camp. Some of the members set out to Wedge Bay (Nubbeena), there to await the arrival of the steamer, and so avoid the journey round Cape Raoul. Others, who had brought their cars down, returned to the city by road. The remainder completed the dismantling of the camp, and then amused themselves in various ways whilst awaiting the arrival of the Reemere. It was nearly 2 o'clock before the steamer's whistle warned members to prepare for the last phase of our Easter outing. The boats soon made an impression upon the pile of baggage on the beach, and by 3 o'clock the last boatload had left the shore. The anchor was weighed, and the return journey commenced. An exceptionally smooth sea prevailed outside the Heads, and the photographers of the party had a busy time as

we passed close to Cape Raoul and other prominent and picturesque headlands which serve to make the Southern Tasmanian coast famous for its scenery.

Calling in at Wedge Bay, those members who had journeyed across to Nubbeena were taken aboard, and it was not long before we were heading across Storm Bay to where the Derwent Light twinkled and glittered, beyond which the glare from the city's lights could be seen many miles away.

Once in the river, these ever grew nearer, and by 9 o'clock we were alongside the Hobart wharves.

Thus came to an end another Easter outing, and one which will always be remembered, owing not only to the delightful weather which was experienced, but to other circumstances as well, one of which was the willing manner in which one and all worked for the success of the trip, and the excellent comradeship which was ever present from start to finish of the outing.



THE WIRELESS TENT AT THE EASTER CAMP.

BOTANICAL NOTES

By L. RODWAY, C.M.G.

The entire district of Port Arthur, with its beautiful inlets and perfect coves, is an ideal collecting ground for the botanist. Our time is short and the ways long, so we must be satisfied with what we may find about the camp at Safety Cove. Firstly, the ecology of the vegetation, that is, how do the plants respond to their surroundings. The conditions on the whole are simple. A great part is wet heath and sour peat, due to considerable rainfall, and poor drainage. Luminous shrubs, epacrids and sedge, plants which can still live in water containing a considerable amount of humic acid, were prominent, while wherever channels over rocks permitted pure water to pass there surely odd eucalypts established themselves.

Eucalypts were mainly peppermints and white gums, but towards the entrance to the port a most interesting form, sometimes called blue peppermint, also cabbage gum, occurs. It is closely related to Risdon gum, but not quite the same, and was once named *Eucalyptus hypericifolia*, by Robert Brown. The Risdon gum and its variations require a lot of attention before we shall fully understand it. It is a great pity that we have very few popular names for our wild plants, and those we have are responsible for much confusion. The same name is often ap-

plied to several distinct plants. For instance, dogwood, currant, pear, or, on the other hand, several names apply to the same plant. In Victoria a complete list of popular names for native plants has been constructed. If this list is consistently used in our schools it will take little more than a generation to get the scheme in full working order. Would it not be wise of us to adopt the Victorian list, and add our special forms to it?

The tongue of land that stretches out from the western side of the entrance of the port, bears two very interesting forms of heath. *Epacris heteronema*, which occurs only towards the wet west, and crops up again in Victoria, New South Wales, and New Zealand, and *Epacris myrtifolia*, a rare Tasmanian heath, originally described and figured by Labillardiere.

The pretty pink boronia, *B. pinnata*, was fairly common. It is interesting that when the plant grows at a considerable altitude, say 2000 feet or upwards, it develops in its leaves a quantity of oil of citronel. This occurs but slightly when growing on low lands. Amongst the acacias the only unusual one was *Acacia suaveolens*, which was just opening its flowers. This wattle can always be recognised by its angular stem and its late flowering period.



A GROUP AT CARNARVON.

GEOLOGICAL NOTES

By A. N. LEWIS, M.C., LL.M.

Although Safety Cove, Port Arthur, does not provide many features of interest, several formations can be studied here better than in most places, notably the contact of the dolerite (diabase) with the sandstone near Remarkable Cave.

Permo-carboniferous mudstones occur at Point Puer and make up the well-known "Suicide Cliffs." They contain a few typical fossils, and are evidently members of the Upper Marine Series. From several miles north of Port Arthur to the coast the rocks consist of Ross sandstones, with occasional traces of fossil plants, and they merge into the Tasman Peninsular coal measures between Port Arthur and Taranna.

Dolerite outcrops on the ridges east and west of Port Arthur and extends to the south in the form of massive sills. These sills—Cape Raoul and Tasman Island form typical examples—are obviously lateral extensions of the main mass further north. On the edge of the sills the mechanism of the intrusion can be studied with great ease, and particularly in the vicinity of the Remarkable Cave many fine vertical and horizontal sections are to be seen. The dolerite, welling upward in the form probably of a massive dyke somewhere in the vicinity of Mount Arthur, has extended laterally through the sandstones by stoping and absorbing block of the older rock. In this vicinity you can see every stage from thin faces of dolerite beginning to merge their way through cracks or weak lines of strata and through more massive examples of the same features to the stage where several of these faces and small sills join, and gradually absorb large blocks of sandstone isolated in this way, and right at the Remarkable Cave some small masses of sandstone—inclusions

in a very considerable body of dolerite—can be seen. Nowhere is it clearer that the dolerite intruded without any violence.

Coast features have been largely produced by erosion of the softer sandstones from these dolerite sills, leaving southward extensions in the form of capes, such as Cape Raoul. On Tasman Island there is a tiny patch of sandstone, a small remnant of the rock that once clothed the whole south coast of the peninsula; and usually small patches are to be seen here and there. The main coast line has been mainly produced by late Tertiary block faulting, and the trend of these faults can be followed by observing the series of straight lines which make up the coast of this part of Tasmania. The shallow water that extends for some 15 miles south of Tasmania's Peninsula evidently covers a further portion of what was once part of the peninsula, and has been submerged by this faulting. The presence of the Point Puer limestones is another proof of faulting processes.

Sand dunes and the way they are formed can be studied to great advantage here. It is particularly noticeable that where the beach is subject to the fullest force of the wind high dunes do not accumulate, their tops being blown off and distributed across the back country. But where, as in Half-Moon Bay, the beach is somewhat sheltered from the full blast of the wind, they accumulate to a great height. On the other hand, in still more sheltered localities, such as Safety Cove, there is not sufficient power in the wind to produce sand dunes of any height. The country between Remarkable Cave and Safety Cove is covered with wind-blown sand, the product of the erosion of the South Coast.



SOME OF THE PARTY AT PORT ARTHUR.

Tasmanian Field Naturalists' Club



EASTER CAMP 1928

at

MEREDITH RIVER,
SWANSEA, EAST COAST, TASMANIA

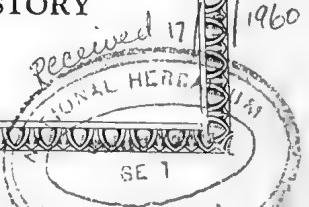


GENERAL ACCOUNT
By CLIVE E. LORD, F.L.S.

NOTES ON THE ABORIGINAL CAMPS
By NORMAN WALKER.

GEOLOGICAL NOTES
By A. N. LEWIS, M.C., LL.M.

NOTES ON GREAT SWANPORT'S HISTORY
By G. MUSGRAVE PARKER, M.B.



Tasmanian Field Naturalists' Club

1928 Easter Camp at the Meredith River,
Swansea, East Coast, Tasmania

GENERAL ACCOUNT

By CLIVE LCRD, F.L.S.



A QUARTER of a century has almost elapsed since the first Easter Camp of the Club was held. Since the initial camps at Bream Creek (1905) and Cole's Bay (1906), the club has made much progress, and as regards its camp outings conditions have changed in a marked manner. In the early days the camps were regarded as rather a unique form of outing by many people who had not many opportunities for leaving town. Nowadays conditions are entirely different. The advent of the motor car has "brought the bush very near to the town," and every holiday sees an extension of camping. In fact, during the recent holidays there were dozens of different camps on the East Coast.

With so many attractions of a similar nature it might have been expected that the Field Naturalists' camps would have died out, but this has not been the case, and the Easter camps still continue to be a prominent feature of the club's activities.

This year the Meredith River at Swansea was the chosen site, and, thanks to the kindness of Mr. Edward Shaw, of "Redbanks," we were allowed to camp on an ideal site on that estate. Beyond the rocky bluff to the north of Swansea lies the great white arc of sand marking the beach at the head of Fleurieu Bay. On some maps this great bay is marked Oyster Bay, owing to a mistake in relation to the bay named by Captain J. H. Cox in 1789, the true location of which is on the western side of Maria Island. At the eastern side of Fleurieu Bay beach the granite rises and extends to the south in romantic shapes and richly coloured hues, as Freycinet Peninsula (the "Van der Lyn Eylandt" of Tasman) and Schouten Island. The even sandy pavement of this great strip of sand is broken in two places—at the far east by the Swan River and near the western end by the Meredith River. This latter stream winds from the hills, and where the East Coast road crosses it, it is flowing in an easterly direction. In this vicinity interesting studies may be made of the earlier river terraces, showing its meanderings in earlier times. The present course of the river, after leaving the road, continues east for a few hundred yards and then turns towards the south and the sea. At the bend of the river the two historic and picturesque homesteads of "Cambria" and "Redbanks" are situated. As one looks at these houses today, surrounded as they are with English trees planted by former generations, the romance of their early days is brought home to one, and to myself these links of the past were even more forcibly brought to mind when view-

some of Mr. Shaw's early relics and records, and discussing matters of long ago in which our forefathers were mutually interested.

From "Redbanks" the river leads to the sea, and beyond the cultivated paddocks a fringe of eucalypts and other trees has been left. It was within this belt of scrub between the sand dunes that our camp was pitched.

Camps, like other residences, take a certain amount of time to prepare, and an advance party left Hobart by car on Wednesday morning, April 4, in order to prepare the camp. Upon reaching Swansea at lunch time we found that our varied impedimenta had arrived by the s. Koomeela, and our good friend Mr. Frank Morey had made all arrangements to have it carted to the camp site for us.

When this had been done, and a tent or so erected, the Easter moon was already lighting up "The Schoutens" and sending golden beams across the bay. Turning into bunk early, one naturalist was rather annoyed to discover a poisonous red-backed spider in his blankets, but another considered it quite a good find, and labelling it "Latrodectus hasseltii," prepared to preserve it in alcohol, whilst his tent mate, who considered he had been nearly bitten, thought that the name was well deserved, but that better use could be made of the spirit. It is well to have varied natures in a camp, otherwise life is apt to become monotonous.

Thursday morning proved a trying time for the small but enthusiastic advance guard. A northerly breeze gradually developed into almost a gale of wind, and the erecting of numerous tents was not the easiest of tasks. However, good headway was made, and towards the afternoon the wind died down and the weather assumed a quieter tone. In fact, from this time on the weather proved ideal, and it is many years since we have been favoured with such splendid conditions for camping. Apart from a bolting horse, which might have caused serious damage, but didn't, and the arrival of the advance guard of the junior contingent, there was nothing to interrupt the preparation of the camp, in view of the anticipated arrival of the main party, who were to come by motor late in the evening.

Their arrival was awaited around a glowing camp fire, and soon after 11 the headlights of the motors were observed coming over the hill. Within a short time coffee and buns were being partaken of in the large dining tent, and soon after the various tent parties set to work to sort out their belongings. The ringtail opossums in the eucalypts were not the only animals who

kept chattering that night, even after the moon had risen towards its zenith, but this did not affect the swimming party, however, for the sun had barely risen before the beach echoed with those peculiar noises so beloved by early morning bathers, especially of the fairer sex.

Swimming from the beach, the granite peaks of "The Hazards" appeared far off on the horizon, and one's thoughts went back to other Easter mornings and the clear water of Cole's Bay as it greeted some very early swimmers in years gone by. But this tale is one for around the camp fires, when the records of the past are being recalled, and so we must return to our present camp and the natural sequence to the swimming party, namely, a very joyful group assembled at the breakfast table. Here plans for the day were discussed, and it was decided that after the various tents had been put in order and the finishing touches put on the camp generally, that a picnic would be held up the Meredith River, and this proved an enjoyable outing. After lunch some of the junior members began fishing for jollytails (*Galaxias attenuatus*) with rather primitive fishing tackle.

The small jollytails of our streams are an interesting species, but, like so many of our fishes, little research work has been done in regard to them. In New Zealand certain investigations have been made, in view of the

economic importance of these small fish and the important bearing which they exercise on other forms of life. In the Dominion the immature jollytails are known as "whitebait" and the adult as "inanga." The jollytails, which represent our closest link, as far as native fish are concerned, with the salmonidae of the old world, descend the rivers in the autumn of each year in order to reach the sea and spawn. In the springtime the young ascend the rivers in great numbers and reach maturity in a few weeks, probably about 15, but the rate of growth depends upon the food supply.

The introduction of the brown trout (*Salmo trutta*) and other such species has had considerable effect as far as our native jollytails are concerned, and in New Zealand the position is more accentuated owing to the fact that in the past large numbers of immature jollytails have been taken each year as "whitebait."

When the English trout were first introduced the jollytails provided splendid food for the new arrivals, and the trout would follow the spring migration of jollytails far up the stream. With the decline of the jollytails from year to year there has naturally been a decline in the trout, as many, owing to the scarcity of food such as jollytails in the upper reaches, now stay nearer the mouths of the rivers and derive their food from such small species as the "Argentine" or



At Meredith's Fishery, Freycinet Peninsula.

"Silvery" (*Retropinna richardsoni*), as this species enters the rivers during the spring and early summer months for the purpose of spawning, and does not ascend far beyond tidal influence.

Mr. Hope has contributed an interesting paper to the Philosophical Institute of Canterbury on the habits of the New Zealand forms, and there is a field for the study of this particular subject in Tasmania. It is a thousand pities that certain of the Freshwater Fisheries Commissioners do not spend some of their time investigating such problems instead of spending their time reviling the platypus (*Ornithorhynchus anatinus*) as being the reason for fish being scarce in some of our rivers.

The tales that have been told by fishermen concerning the platypus are typical of the tales usually told by the followers of Izaak Walton, but so far they have not introduced the "bunyip" — perhaps he is being saved up for next season.

The sport initiated by the juniors proved too fascinating, and it was not long before some of the senior members of the party were performing rather extraordinary antics on the banks of the stream in order to lure the unsuspecting jollytails from their natural habitat.

The size of a species bears no relation to the sport it affords, for it is often the smaller forms which provide the better sport. As an instance of this, reference might be made to an interesting paper by Mr. Knut Dahl, published in the proceedings of the Norske Videns Kaps Akademi i Oslo (1927), in which he describes a dwarf variety of land-locked salmon (*Salmo salar*) which rarely exceeds 12 in. in length, but which provides even better sport than the large trout.

Some excitement was caused by one naturalist observing two or three fresh-water flathead (*Pseudaphritis urvillii*) in the shallow waters, and his efforts to secure them by means of a piece of string and a bent pin gave proof of his enthusiasm as an ichthyologist, if not as a fisherman. The bream fishermen further down the river may have had larger hauls, but it is doubtful whether they derived more enjoyment from their outing than did those of the searchers after jollytails—especially the junior members, one of whom carried home several small fish in a billy, and in his enthusiasm attempted to establish a miniature aquarium in his tent. The escape of the aquarium's tenants during the night resulted in the sudden awakening of another junior member, and the resultant melee caused the guard to turn out.

It may be mentioned here that for some years past the club has been endeavouring to interest schoolboys in the work of the club, and largely owing to the interest displayed by Mr. Norman Walker the boys of the Hutchins' Junior School have done very good work. Several of the boys attended the camp, and their interest in camp life was clearly shown. Anyone who could have answered fully the numerous queries of the junior section would have proved himself a naturalist of most profound learning.

As an instance of questions asked one may be quoted, as it later gave rise to considerable discussion. Why does sand run up-hill? In-

vestigation showed that if a groove was made down a sandbank the sand above rapidly filled in, and it appeared as if the sand really ran up the groove. So effective was the optical delusion that several unsuspecting people were rather taken in by the demonstration given, and the phenomenon became known as "Tucker's Law." Whilst these references refer to the lighter side of camp life, there is another side of far more importance, for the juniors are given a good chance to study natural history, and if they have natural ability in this direction their membership of the Field Naturalists' Club may mean much to them in the future. There is a great field for scientific research in Tasmania, and the study of natural history by the juniors of this generation may lead to far greater works when the boys of to-day become men of to-morrow.

When the picnic party returned to camp on the Friday afternoon there was a further batch of members to greet, as several had come in their own cars and motor cycles, and they had not left town until Friday morning.

On Saturday two parties were formed. One proceeded by car to Bicheno, about 28 miles north of Swansea, and the other went along the beach towards the Swan River. The motor party had a pleasant day. Some splendid views were obtained along this section of the road, particularly from the top of the hill some miles beyond Cranbrook. Looking towards the south-east, the valley of the Swan River lay below like a Streenton landscape, the bright sunlight serving to pick out the various greens of the cultivated areas and the surrounding forests, whilst the Swan River and Moultong Lagoon stood out like polished silver. Away to the south were the green-tinted waters of Fleurieu Bay, beyond which the rosy-tinted peaks of Schouten Peninsula merged into the misty grey tones of the distant horizon. "The Hazards," Mount Freycinet, Bear Hill, and the other major peaks of "The Schoutens" stood out as a fitting background to this wonder scene. The granite peaks of the east are always beautiful, but in this instance

"Tis distance lends enchantment to the view
And robes the mountain in its azure hue."

Our road was northward, however, and it was necessary to follow the winding way until the eucalypt-tainted air gave way to the ozone of the sea, and the granite outcrops on the roadside showed we were approaching the coast. After running down into Bicheno it was decided to have lunch on the shores of the picturesque cove known as Waub's Boat Harbour, where a small granite island forms a cove which provides shelter for small boats. Here in the old days Waubadebar, the aboriginal whose grave is still cared for at Bicheno (although what is left of the skeleton is in the Tasmanian Museum), probably deftly brought the sealing boats to rest, for she was a great boatwoman. Later the harbour was used as a shipping port for coal, and part of the old store is still standing.

The second party who visited the country in the vicinity of the north of the Swan River had



A Quiet Corner at The Fishery, Cole's Bay.

an interesting day. Leaving camp and crossing the mouth of the Meredith River, which was then closed by a sand bar, it was only a short distance to where the remains of the s.s. Moonah lie embedded in the sand. As one looked at the timbers of the old ship one's thoughts went back to the Field Naturalists' party which she conveyed to The Schoutens at Easter, 1906, and to the adventurous trip of 1908, when the famous episode of the swimming horse took place, and to other incidents of former Easter trips with which the Moonah had been connected.

Beyond the wreck the beach stretched in an unbroken line for miles, and after travelling a fair proportion of the way the party turned inland, as the Swan River curves to the west after leaving the sea, so it was not necessary to go to the extreme end of the beach to gain a sight of the river.

A fair number of black swans were seen, but they were very restless, and no wonder, for the Easter sportsman was everywhere in evidence with his gun. The question of the swans in this district has been mentioned several times in the club's journal, and in the annual reports of the club.

Moulting Lagoon and the Swan River are one of the great breeding grounds of the black swan, but with the raids made upon their eggs and excessive shooting the future of the swans is giving many of the leading residents some concern. The local council has also taken the matter up. The control of the swans is in the hands of the Police Department, in accordance with the terms of the Animals and Birds Protection Act, and during recent years a police trooper has been stationed at the Lagoon during the nesting period, but it is hopeless to expect one man to look after such a large area, and judging from even a percentage of what we were told by one and another whilst we were camped in the district, it will be necessary to afford still further protection if the large flights of swan are to be seen over the lagoon in the future as they have been in the past. The advent of the motor boat has meant still further destruction of our wild life, and the black swan has been one of the species to feel the added forces of destruction which each year are being brought to bear upon our fauna, in spite of all the protests of such societies as ours. That night as we gathered around the camp fire and heard the swans honking as they flew overhead one recalled the lines written by Mitchel concerning the swans at Lake Sorell.

"And the snow-white swan that on St Mary's Lake floats double—swan and shadow—does he float more placidly or fling on the waters a more stately reflection from stately neck than thou jet-black, proud crested swan of the Antarctic forest waters?"

On the following day the camp was astir at an early hour, for it had been resolved that all the campers would board s.s. Koomeela in order to visit Meredith's Fishery at Cole's Bay, the site of our Easter camps of 1906 and 1910. Once aboard the good ship we were pleased to renew acquaintance with the skipper and other members of his crew who had done so much to make

our trip round the Lemon Rock a pleasant one during Easter 1925. The skipper even promised the ladies of the party another trip round this now historic rock, but the invitation was declined, rather abruptly perhaps, so, just to keep up the story of the sad sea waves, conversation turned to the episode of the doctor and the crayfish, as well as the agitated faces of the two members of the deputation who so longed to turn back—"for the sake of the ladies." Yarns such as these wiled away the time until we reached Meredith's Fishery, once the site of an old bay whaling station.

This picturesque cove, backed by the great rounded granite peaks of "The Hazards," faces across Cole's Bay; to where a new jetty has been built in order to connect up with the proposed railway from Dalmayne Collieries. A certain amount of work has been done on this line, and the future may yet see Cole's Bay the terminal port of the East Coast coalfields.

Meredith's Fishery is little changed from years gone by, except that Mr. Parsons has built a camp at the eastern end of the bay. The granite rocks of the neighbourhood defy Father Time, and the visitor, returning to this scene of beauty after an absence of some years may well quote P. R. Chambers:

"I find," said 'e, "things very much as 'ow I've always found,
For mostly they goes up and down or else
Goes round and round."

There is something sphinx-like in the towering boulders of "The Hazards," and as one scrambles up the hill and round the great projecting granite rocks one rather loses sense of scale, and the sight that meets one's eyes when the crest of the divide or the summit of the hill is reached causes a hasty readjustment of distances. Far below lies the silvery arc of Thouin or Wineglass Bay, that scenic gem of our East Coast. To the south lies Mount Freycinet, backed by the granite ranges. To the west a narrow strip of sand, and then the Hazard Beach, off which lies Refuge Island, the nomenclature of which recalls the plight of the French explorers of 1802 and their enforced stay at this small rocky outcrop. To the south-east, off the entrance to the bay, is the Lemon Rock, a locality well known to certain members of the club.

The foregoing are but the main features of the panorama of sea and land which reaches out at one's feet, the changing lights of which serve to add to the beauty of the scene, and to recall former sunrises and sunsets in this area, for it is at the dawn and end of the day when the rosy-tinted hills and purple valleys of the peninsula and island really appear at their best.

Whilst the mountaineers of the party were viewing a wide range of country, other members were giving detailed attention to small areas along the foreshore, for it was here in days gone by that the dusky aborigines had their camps, and scattered over the ground are the last relics of these nomadic hunters—the stone implements which they used for so many purposes.

The sunlit waters of the Cove tempted several swimmers, as well as serving a most useful pur-

pose as far as one junior member was concerned, for the sight of this youth before and after he had met the water was referred to as "a most perfect example of the evaporation of pugnacity."

Meredith's Fishery derived its name from the early days when there was a Bay Whaling Station at this spot, and traces of this can still be found. The whaling area was a very definite page in the history of our state, and it commenced even before settlement. After the foundation of the colony numerous Bay Whaling Stations were formed—the first being that of William Collins at Trywork (or Droughty) Point, in the Derwent River. Under this system the work was carried out by small boats, and their crews had many adventures, not only in the pursuit and capture of the whales, but also in the long and tedious tows back to the stations, where the whales were partly treated and the products shipped to other centres. By the middle of last century this phase of the industry was declining. Excessive hunting of the black whale had the natural effect of reducing the numbers to such an extent that the industry gradually ceased, but out of it arose the era of pelagic whaling, and in place of the black whales, sailing vessels were fitted out to search the oceans for sperm and other whales. Hobart whalers went far afield, but again excessive hunting had its natural effect, and even sperm whaling ceased to pay. In our day we see attacks being made, with all the weapons of destruction which civilised man can invent, upon the last resort of these huge cetacean mammals, namely, the icy waters of the Antarctic.

As with the whales, so with the seals. In the early days there were, to quote a French naturalist, "innumerable legions of seals" on the East Coast. To-day there are but a few scattered herds.

In spite of the lessons of the past, the present generation pursues the policy of destruction, utterly disregarding the future and the great scientific and economic value of our fauna. Take our marsupials, for example; in the last five years over 400,000 Bennett's wallaby have been killed. It may be mentioned that Bennett's wallaby is commonly called the kangaroo in Tasmania owing to the fact that our only Tasmanian kangaroo—the forester—has been hunted almost to extinction.

Of the scrub wallaby, 577,900 were trapped, whilst opossums were snared to the number of 3,010,100. It is impossible to continue without serious results, but in spite of all this club and other such societies have done, the Government for the last few years has declared open season after open season, without regard to the disastrous economic consequences which must follow.

The present unsatisfactory state of affairs was fully brought home to the members during their camp at Swansea, and their visit to "The Schoutens" in particular. This club was largely instrumental in having the peninsula declared a sanctuary for native fauna, and has always been interested in the reserve. A sanctuary it is on paper, and a line across the isthmus notes on the map, where in Byron's lines, man

"Marks where his carnage and his conquests cease!"

He makes a Solitude and calls it—Peace."

When we gather the evidence which pours in upon a club like ours on all matters relating to fauna, we can realise the amount of "Peace" which the animals in this so-called sanctuary obtain. Little attention is paid to it, and hunting and snaring take place in an unrestricted manner. If we allow even our sanctuaries to be trapped out, how can we ever hope to keep our fauna and develop it on proper economic lines, for it is recognised that sanctuaries, in the true meaning of the word, are essential if a country's fauna is to remain. Our Tasmanian fauna consists to a very large extent of primitive types which, when brought in contact with more advanced species, decline rapidly. Our smaller marsupials give way to the rabbit, and our native birds are dominant by starlings and sparrows, in consequence of which the native pests upon which they used to feed flourish unchecked.

The importance of our fauna has yet to be realised. Its scientific interest, its value to medical science, and its economic aspect have all been overlooked of late years by the Government in their endeavour to gather in a few thousand pounds of revenue by means of hunting fees, etc.; and so far out of these fees funds have not been provided in order to safeguard the sanctuaries. It is the clear duty of every member of this club to work for a more enlightened policy in the future. We have been placed in charge of a most wonderful heritage as regards the flora and fauna of our wonder island, and it rests with us to respond to the trusteeship which has been granted us.

Such thoughts as the foregoing were in our minds as we steamed westward back to camp-Astern, the last of the sun was tipping the peaks with hues of salmon pink, which merged into the greys and purples of the valleys and ravines. A more peaceful sunset would have been hard to imagine, yet will there be peace within these hills this winter for the soft-eyed creatures who place their trust in "sanctuary."

Monday morning arrived all too soon, and some of our party left in order to return to town. The remainder arranged to visit certain old buildings at Swansea, and later to follow the coast down for a mile or so. One of the main objects of this outing was to examine the shore line for traces of the old aboriginal camping grounds. These abound all through this district. At Bicheno some splendid examples have been secured, and stone implements of a rougher character had been gathered at Meredith's Fishery. South from Swansea every headland and bay afforded traces of the race which formerly roamed over this area and whose final history was so sad. Their hunting grounds invaded, their coastal camps raided by sealing gangs, who shot the men and carried off the women to the islands in the Strait, and generally their whole lives made one of abject fear, by the rougher elements of the early days of the island. After almost 20 years of such persecution, is it to be wondered at that the blacks failed to discriminate one white from another?

and that attacks were made on travellers and isolated farms? Before condemning the aboriginal inhabitants for their part in the "Black War" it is well to study the various events which led up to it.

Very considerable collecting can be done in the vicinity of Swansea, and several of the campers returned well satisfied with their outing. Among the stone implements collected there was one type which was very common in the district—a rather crude, roughly flaked dark stone implement. If the water-washed stones on the beach are examined it will be noticed that a percentage of them are of a much darker and more flint-like character than the average, and these appeared to be favoured by the blacks for a certain form of implement, as numbers of a similar nature could be found at most of the old camp sites visited.

That night round the camp fire we discussed these and other interesting items of the camp, but as it was our last evening the musical members also had their fair share. One item almost caused trouble, as a competition had been arranged and a prize offered. Each member had to think of a song, and at the word "Go!" to start singing, the one that kept going the longest to be the winner. The resultant discord was awful, and just at the stage when the singer of "Nellie Bly" was trying to outlast "Waltzing Matilda" a number of local visitors arrived. We still wonder what they really thought when they first came over the sand dunes. If only they ha'l

arrived a little earlier they would have found a most interesting discussion proceeding concerning palaeolithic man!

Tuesday was our last day. After breakfast (the fish having been provided by the junior members), compliments were expressed to the chef (Mr. Parker) and his assistants for the manner in which they had studied the interests of the campers, and then the breaking up of our happy homes commenced. The advance guard, considering they had done their duty in erecting the camp, left early and returned to Hobart by motor via Campbell Town, calling at Grimes' Lagoon en route in order to collect more stone implements. The main party, after their work was done, spent the day in the vicinity of the camp, finally leaving Swansea late in the afternoon and reaching town that evening.

Another Easter camp has come and gone. This year's outing at the Meredith River may well be classed among the best of the club's excursions, for combined with the perfect weather there was a true spirit of camp comradeship, and all tended to make the fixture a pleasant one. Writing as one who has had the privilege to organise many such outings, I can only state that one could not wish to manage a camp under more pleasant conditions than those which existed last Easter.

Finally one must not forget the debt that the club is under to our many good friends at Swansea, who helped in so many ways to make the camp a success.



A section of Swansea, showing the jetty and one of the beautiful beaches.

NOTES ON THE ABORIGINAL CAMPS

By NORMAN WALKER.

THE Field Naturalists were camped in the very home of the Oyster Bay tribe, who, with their friends the Big River "mobs," were so well known to the early settlers. Our friends and foes have mingled their dust with the land they both loved. The houses of the settlers still stand along the coast road, and so little changed that one almost expects to see a crinoline or frock coat in the old doorways. Of the earliest inhabitants of all nothing remains but the chipped stones, lying where their makers dropped them, and the pathetic heaps of oyster shell along the shores. It is easy to condemn the early colonists for the disappearance of the natives, but the former were not all blackguard stockkeepers and sealers. It is very easy, too, to censure, for not feeling the modern popular interest in anthropology, the pioneers who were busy from dawn till dark in hewing their homes from the wilderness. Certainly the loss to science from the disappearance of the last warriors of the Early Stone Age is nothing short of a tragedy. We feel that keenly, and we feel with equal keenness, let us hope, the sufferings of the poor people themselves. They perished within the lifetime of one black woman who was born when the first white settlement was made, and who died 52 years ago, the last survivor of her people. What we of today can do is to preserve what knowledge we may of the vanished race. It seems to be a debt that we owe their memory and, if it is so, it is a debt towards the payment of which the Field Naturalists are trying to do their part.

On this Easter expedition some collections were made of the native implements, commonly called "flints." There is no true flint in Tasmania, the chief substitute for it being a baked mudstone or chert. It is almost as good a material, and the natives go it when they could, but were ready to use any suitable stone that lay at hand. Thus, on Swansea Point, beyond the ruined church, hundreds of flakes are to be picked up, having been struck off from the masses of beach pebbles that lie on the shore just below. At "The Fisheries," on Schouten Main, use was made of pieces of a snow-white quartz, that is found in the granite boulders of "The Hazards." There was a midden on the little headland next the Field Naturalists' camp, and on the day when a party went to Moulting Lagoon, scores of patches of oyster shells among the sand dunes showed where the natives had held their feasts. The

limy incrustations on the roots of vanished scrub showed that these meals were held in shelter. It was hard that these deposits were for the most part smothered in sand, for had the wind elected to expose the old soil level, flints could doubtless have been found. As it was, only two or three were obtainable.

Part of the charm of flint collection lies in the prediction of likely spots for finds. The writer has a number in front of him, together with hammer stones (used probably for breaking shells or bones), together with a number of little round throwing pebbles. But a description would be tedious. Some classification of the different shapes can be undertaken, but one cannot escape the uneasy suspicion that they are as much the result of accident as of design. Generally it may be said that the Tasmanians were a people of scrapers, and, as every collector knows, the bevel of the edge is almost invariably on one side only. Nearly all the implements would be efficient for trimming a tea-tree spear. Sharp natural flakes were used for cutting up animals. Specimens that are definitely shaped to a balanced outline are hard to come by, and it is here suggested that the aborigine cared little what his implement looked like so long as it did his business. As to the really beautiful specimens that gladden the collector's heart, did they require a rare artist, or are they the result of a fancy taken in a leisure hour?

Of the life of the natives nothing can be said here, though it would be easy to say a good deal. Should a beginner decide to collect flints, let him visit the Museum to get an eye for them, though by most people the more obvious specimens are easily recognised. His finds should not be allowed to chafe against each other as this destroys the edge and patina, the surface having usually been softened by exposure. Should the collector tire of his finds or find it impossible to carry them with him when moving his home, let him bestow them where they will be appreciated and cared for. At present there are plenty to be had, though for the most part they await the plough. The river banks and coasts of the island must be sown with them. Nevertheless, when they are gone there will never be any more, and we have a debt to the future as well as the past. In any case, a collector will find, as certain Field Naturalists do, that his hobby has given him some very happy outings.

GEOLOGICAL NOTES

By A. N. LEWIS, M.C., LL.M.

THE camp site, near Swansea, is not a locality of any considerable geological interest, but several features were observed which provided sufficient material to keep those members who were interested in geology busy during the camp.

The most interesting of these features is a very fine series of river terraces extending up the valley of the Meredith for about three miles from its mouth. All the evidence in the locality points to a recent rise of the land surface—perhaps to the extent of 50ft. An old shoreline is clearly visible, extending from the rocky point half a mile north of the Swansea jetty in a roughly half circular sweep—first north-westerly, and then northerly, then north-easterly—extending for over a mile west of Bicheno-road, and reaching to Moultting Lagoon at the mouth of the Swan River. The Meredith has filled in this wide bay and covered its surface with river drift.

Over the delta formation thus deposited the river has cut several courses, the present course being the most southerly of any. Each course in succession to the south has been cut deeper than the previous one, and on the banks of several of these are some of the finest examples of river terraces to be seen in Southern Tasmania.

The Apsley River and Swan River, with their estuaries, known as the Moultting Lagoon, also provide some interesting studies in the development of river topography. Several

changes of course are clearly noticeable. All these have probably been induced by the building of a line of sand dunes now forming the spit across the entrance of the lagoon. A recent sinking movement on the lines of the two faults, which regulate the eastern and western coast of Fleurieu Bay, is probab'ly responsible for the action of the sea in forming lines of sand dunes in succession to the south across the mouths of these rivers, and has been responsible for the peculiar topography in this vicinity. Probably the process will continue, and the head of the bay will be gradually filled in. The continuation of this movement would divert the Meredith into the Swan River.

The rocks in the vicinity of the camp were entirely triassic dolerite and recent river and beach rocks. Some interesting recent limestones occur somewhere in the vicinity, many pebbles and boulders detached from these being found on the beach south of Swansea. The rock is of a peculiar nature not hitherto observed by the writer, consisting of a remarkably hard limestone, almost too hard to be broken by a hammer, and containing fossils of modern shells of typical recent species. The rock apparently occurs only below low-water mark.

The members of the camp made an excursion across to Schouten Peninsula for one day during the camp, and had a further opportunity of studying the granite there occurring, but no facts of interest beyond those already recorded in previous reports were observed.



Members of the Camping Party near Swan River.

NOTES ON GREAT SWANPORT'S HISTORY

By G. MUSGRAVE PARKER, M.B.

THE history of the district of Great Swanport, in which the 1928 Easter camp of the Tasmanian Field Naturalists' Club was held, presents many points of interest. It first figures on the chart of the coast of Van Diemen's Land, prepared by Tasman, when he cruised off the coast in 1642, and put the name of Schouten and Van der Lyn's Eylandt on his chart. But it remained almost unnoticed until after the arrival of the first fleet, and the foundation of the settlement at Botany Bay. From this point the early whalers and sealers of the settlement pursued their trade around the South and East Coasts of Australia, and in the bays and islands of Van Diemen's Land collecting oil, whalebone, and sealskin; and there is much evidence to show that such enterprises carried them round Schouten, Maria, and the other islands of the coast. In 1802 the bays were charted and the islands explored by the French expedition under Admiral Baudin in the ships *Naturaliste* and *Geographe*, which lay at anchor on the west side of Maria Island; whilst boat expeditions were sent out to explore. One such party, under the command of M. Freycinet, jun., explored the shores of Fleurieu (or Oyster) Bay with a view to determining the existence of Van der Lyn's Eylandt, and if there was any communication between the head of the bay and the open ocean. Thus was discovered the great peninsula known as Freycinet's Peninsula, and the strait between it and Schouten Island, named by them Geographe Strait. Ille des Phoques, later named the White Rock by Surveyor Cross, was so called on account of the number of seals seen there. Captain Kelly, in 1816, when he circumnavigated Van Diemen's Land, caught several seals on it.

Never again did the locality relapse into its previous obscurity, for it became a frequent thing for the merchants and seafarers of Hobart Town to send up the coast boat expeditions to obtain seal and kangaroo skins, swan skins, and swansdown. Sometimes lives were lost. One tragedy which happened with a party of hunters sent up by Mr. Birch, of Hobart Town, is detailed in the Gazette of November 28, 1818.

In December, 1819, the first real attempt to inspect the possibilities of the district was made. Governor Sorell sent up a party under Henry Rice on foot to explore and report on the locality, and it was as a direct result of these enquiries and the glowing report of the explorers that settlement took place.

There arrived at Hobart Town on March 17 1821, after the long and tedious journey from England, the ship "Emerald," and among others on board of her were Lieut. G. C. Meredith (late Royal Marines) and Messrs. Adam and John Amos, together with their wives, families, household goods, and stock. When presenting their orders for land to the Gov-

ernor he brought the district under their notice, and without delay Mr. Meredith and Mr. Amos hired a whaleboat, and on April 5 crossed Storm Bay, hauled her on rollers across East Bay Neck, and proceeded up the coast to inspect the land lying by the Swan River so highly spoken of. Arriving at the Swan River mouth, they proceeded up the stream; but failing to find the river channel, they dismissed the boat, ordering it to proceed to the head of the bay—near the small river—whilst they explored on foot.

As a result of this trip Mr. Meredith decided to take his grant at the head of the bay—now the estate of Cambria—and Messrs. Amos located higher up the river at the point now known as Cranbrook, where their descendants still reside. In October of this same year (1821) the three families moved up to Swanport with their belongings and stock. Several other settlers came up shortly afterwards, and the new settlement was fairly launched by the end of the year. Amongst those were Wm. Talbot (later of "Malahide"), Thos. Buxton (who eventually settled at Mayfield), and J. de Courcy Harte.

In 1826 another batch of settlers came to reside in the district—the Allens, who settled at Milton, between the Merediths and the Amoses; the Webbers, who chose Piermont, about two miles south of Swansea, for their grant; and the Lynes. The Lyne family settled on the banks of Moulting Lagoon, on the N.E. side of the tier above Cranbrook, and called their grant Apsley, after the eldest son of Lord Bathurst, who had given Mr. Lyne an order recommending him for a grant of land. The year 1827 brought them a neighbour in the person of Captain Thos. Watson, who, with his family, took a block of land just south of Apsley—a property they called Sherborne Lodge. In 1828 Capt. Robert Hepburn, R.N., settled at Roy's Hill, on the St. Paul's Tier; and in 1829 saw the arrival of Francis Cotton and family, who took up land at Saltwater Lagoon (now Kelvedon), about six miles south of Swansea. E. C. Shaw arrived in the district in 1830, and purchased the grant to G. Meredith, jun., now known as Red Banks Estate, on which our camp is placed.

The difficulties and dangers which had to be faced by the early arrivals cannot be overestimated. The journey from Hobart Town was made either in a whaleboat or by a small vessel. One party got wrecked on the way up. Shortages of food, especially in the first few years, floods, fires, bushrangers, and native attacks all had to be faced—not only by the men, but by the women and children of their families.

As in all isolated communities, after the first few years the products of the farms had to be sold, and to do so it was necessary to have a shipping place for the goods. The point which came into general use was a small

reef about 400 yards west of the present jetty at Swansea. The products were loaded into carts, which were backed out into the water to the rocks, and there loaded into boats, to be taken to the vessels lying out in the deeper water. Around this shipping point sprang up a store, in which the goods might be placed, and several houses for the refreshment of the carters and others. Such was the beginning of the township of Swansea. Then about 1827 the Government of the day stationed there an assistant police magistrate, with a few field police, to keep order in the district, and a small Public Works Department, with a few skilled prisoners, such as sawyers, stonemasons, plasterers, etc., with a small military guard. The buildings in which all these men were housed were on the point at Swansea now the golf links; and as the first magistrate—Capt. Hibbert, of the 40th Foot—had served his Majesty at Waterloo, he called the station Waterloo Point, by which name the budding township was for many years known. Gradually more people settled there—officials, such as chief district constable, poundkeeper, postmaster, police clerk; and private individuals, such as innkeepers, storekeepers, etc., until the township reached a respectable size.

Owing to the absence of roads settlers living to the north-east of the Cranbrook Tier usually placed their products on boats, and sent them down the River Swan and across the head of the bay, where they were shipped direct into the large vessels which were to take them without transhipment to Sydney or London.

Before leaving the subject of Swansea township, there are one or two assistant police magistrates who are worthy of mention—Thomas Daunt Lord (late 2nd West India Regt., lately Commandant at Maria Island), Lieut. Aubin (63rd Foot, afterwards Warden of Spring Bay municipality), and Lieut. Thos. Wharton Young (21st Foot), who, whilst on duty, was drowned on July 1, 1837, by the capsizing of his boat crossing the bar of the Little Swanport River.

Of the public works station little remains—The old commissariat store, traces of foundations of buildings, and the aloes on the crest of the point, which formerly grew in the Commandant's garden.

In 1840 a civilian, W. T. Noyes, was appointed as the Chief Magistrate, and he held office until his transference in 1856 to Latrobe, when E. C. Shaw was appointed Visiting Magistrate. He held office till 1860, when the municipality of Glamorgan was established, and the Warden, ex officio, became the Chief Magistrate of the district.

Some notice might be taken of the articles sent away. From the farmers came mostly wheat, bark, and potatoes. The bark was shipped just dry, after being chopped up and put into bags, or else, in some cases, the extract of tannin was made with water, and the result shipped in casks. Wool in the early days was of but little value, and was either burned or dug straight into the ground as manure; but, of course, later became a great article of export. Skins, both of seal

and kangaroo, were also shipped, but in no great quantity. Another valuable article of export was the product of the Bay Whaling Stations, with which, for a long period, the coast was dotted. These were mostly owned by Hobart Town men, but Lieut. Geo. Meredith had a whale fishery of his own, and had stations at Maria Island, on the harbour at Spring Bay, and one which you have doubtless visited on the eastern side of Oyster Bay, in the shadow of the Hazards. All these stations, of course, forwarded whalebone and oil to Hobart Town and London.

Towards the end of the period 1830-40 coal had been discovered on Schouten Island, and during the 1840-50 period was being worked and exported; but the discovery of the field lying just north of Bicheno and its subsequent development by the Douglas River Coal Company rather overshadowed the efforts of the Australian Smelting Company on Schouten Island. The Douglas River Company built, with the assistance of the Government, a tramway to Bicheno—of which the embankments in many places remain to-day—where their coal was shipped. Both these ventures eventually were stopped by the water, which entered their workings.

There is one way of showing the growth of this district which will probably be of interest, and that is the following figures of returns of population:—1823, 69; 1833, 341; 1847, 1065; 1859, 1191; but to give any regular series for comparison is misleading owing to the alterations in the area in which a census was taken.

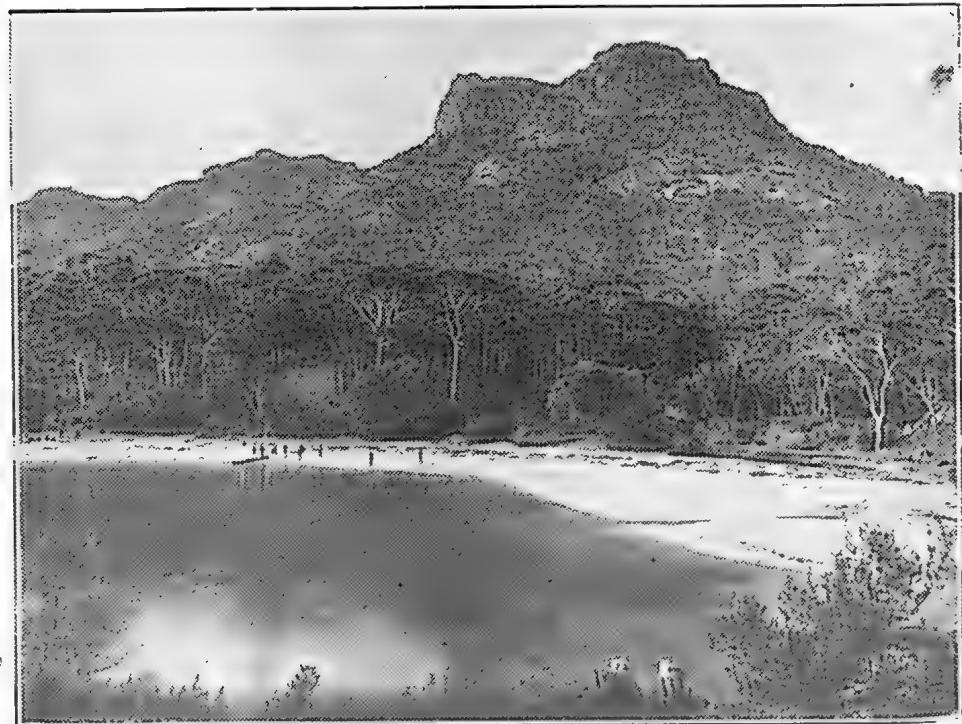
As regards the religious life of the community, a few remarks may be inserted. The Society of Friends held their meetings at Kelvedon, the residence of Francis Cotton, in 1833, probably the first meeting to be regularly held South of the Line, being founded by Messrs. Backhouse and Walker. A Church of England chaplain was appointed in 1839—the Rev. Joseph Mayson, who administered to the needs of his flock for the long period of 38 years. At first services were held in the schoolhouse, later in the old church situated on what is now called the Recreation Ground, until 1868, when the building was vacated as unsafe, and the present church commenced. A chaplain of the Church of Scotland was appointed to the district in 1844—the Rev. Thos. Dove—who also ministered in the locality until 1882. The kirk was built at Gala (Cranbrook) in 1845, the one at Swansea being opened much later.

A few remarks on political history may here be inserted. As regards the Legislative Council seat—for the first partly Elected Council the district was included in the Oatlands group, and was represented by Hy. F. Anstey, who beat Chas. Meredith. After the granting of a wholly Elected Parliament in 1856 the Legislative Council seat was in Pembroke group, and was held by Messrs. James Whyte, James Lord, W. Hodgson, H. Lamb, W. W. Perkins, and James Murdoch in succession. For the Lower House, Glamorgan, in 1855, was constituted a separate

district, and the seat was in turn held by Messrs. Chas. Meredith, John Meredith, John Mitchell, John Lyne, E. T. Miles, and F. Shaw, until the "grouped electorate" system came into force. There are many tales of the early elections, which were conducted with much animus.

Among other disabilities with which the early settlers had to contend were two which so far have not been mentioned in this sketch. They were the natives and the convict population, who had escaped from lawful control. The natives, who resided in, or, more correctly, frequented, the district were known as the Oyster Bay Tribe, and had a reputation for ferocity greater than that of any other tribe, but for the first two or more years gave but little trouble. This was, however, only the lull before the storm, which broke on November 5, 1823. On that day, at Grindstone Bay, some four miles north of Spring Bay, a mob of natives under the guidance of Mosquito—a black tracker brought by the Government from New South Wales—murdered William Holyoake, a servant of Mr. G. Meredith's, returning from Hobart Town, and Mammoa, a native of Otaheite, a shepherd of Mr. G. Gatehouse's; whilst the white shepherd of the latter (John Radford) only escaped with his life by running away after being speared.

From this time onwards for the next eight years there runs a tale of tragedy — isolated shepherds, stockmen, and others murdered in lonely spots, and their huts plundered; attacked near the residence of their masters, and finally even the residences themselves besieged in a most determined manner. Amongst the latter was the attack on "Mayfield," the residence of Mr. Buxton, where the affray lasted two days. The thatch was fired, and had it not been for the bravery of two of the occupants, who put the fire out, all would have been burned or speared. A similar type of attack was made on the Meredith homestead, and in each of these cases valuable life was lost. In fact, such a reputation did the locality acquire that Messrs. Backhouse and Walker, in their extremely interesting "Narrative," drew attention to the long sequence of native outrages in Great Swanport district; and they were men of moderate views and extreme accuracy. It should be kept in mind, however, that the blacks had been very badly treated by the rougher elements of the population; and when all the records are considered, it is not to be wondered at that the blacks attempted to retaliate on those who had come to take possession of the aboriginal hunting grounds.



A view of Meredith's Fishery, Cole's Bay, near Swansea.

In 1830 the Government made the attempt to round up the natives by the operation known as "The Black Line." Waterloo Point was a base depot for rations, and the old ration books are still in existence. As in other districts, parties were raised by the leading settlers—Messrs. Amos, Lyne, Meredith, Buxton, Harte, Allen, etc.

The following year a similar operation conducted locally met with the same (or about the same) amount of success. Hearing that a large body of natives were on Freycinet's Peninsula, Messrs. Jno. Lyne, Chas. Meredith, and Jno. Amos raised parties, and formed a line across the peninsula between Oyster Bay and Wineglass Bay with about 100 parties of two men each, 40 yards apart, and fires lit between parties. However, one night before the moon had risen the natives rushed through the line, and all that was found was a piece of a hairy black scalp on a sheoak limb.

After this episode native outrages practically ceased; and before long, by the tact and bravery of one man (George Augustus Robinson) the natives were induced to give themselves up, and were removed to Flinders Island.

The presence of convicts on the island led to the same difficulties and dangers from the parties of those who had escaped as in other places. Great Swanport had several visitations from renowned parties such as the Bradyselves, and left in one of his whale boats. It dence of Geo. Meredith, reprovisioned them—McCabe gang, who in 1825 plundered the residence of Geo. Meredith, reprovisioned themselves, and left in one of his whale boats. It is said that Mr. Meredith was hidden by his quick-witted wife in an empty cider barrel, as they had previously threatened to take his life.

For many years similar persons, but of less importance, made themselves objectionable to the settlers, but there is no record available to show that any of the leading members of the profession operated there.

In 1857 two local men—Driscoll and Flaherty—the former known as "Dido," caused trouble in the locality by a series of highway robberies, but were captured in that year at a spot about 3½ miles north of Swansea known as "Dido's Hill;" but as no case of murder stained their record they were given sentences of imprisonment only, and "Dido" eventually "made good" in other spheres.

The subject of convicts cannot be left without some reference being made to the establishments founded in this district for their reception—one which has already been spoken of was at Swansea itself—and was mainly a depot for the supply of skilled labour in the very early days.

Another establishment, of a different type, was opened in 1841 at Rocky Hills, 10 miles south of Swansea. This was a station for the reception of probationers. These were at first employed in making a good road over Rocky

Hills itself, and later in agricultural labour. When at its zenith it held about 400 men. The ruins of the station may still be seen by the tourist, and until recently one was shown the treadmill, but that has now gone. The Commandant's house is still inhabited, and also another cottage, but all the rest is in ruins. Among the Commandants was William de Gillearn, formerly major in the Brunswick Oeis, and later Usher of the Black Rod in the first House of Assembly. Thomas Griffiths Wainwright, forger, prisoner, and artist, spent a short period of his life at Rocky Hills, and there were also some eight or nine prisoners who were transported in 1840 after the rebellion in Canada. The stone bridge on the main road four and a half miles south of Swansea was built by men from this station.

Some of you may have noticed on the beach at low tide the remains of a vessel. They probably represent what is left of the Welcome, which took fire in 1868, and was run ashore there. Varying with the state of the tide and sand, there may be visible portions of the wrecks of the cutter "Resolution," blown ashore in 1850, or the s.s. "Moonah," lost there recently (1925).

After dealing with the destruction of vessels, it is of interest to note that Mr. Geo. Meredith built and launched sideways into the river, near our camp site three fairly large vessels for use on his whaling enterprises. One of them was a 50-ton ship.

Most of the trade of the coast has been carried on in cutters, fore-and-aft-rigged schooners, and ketches until recently, but as far back as 1855 the Eastern Steam Navigation Company, with £20,000 capital, was formed to trade up the coast as far as George's Bay, and many local people held shares. They had three steamers—"Mimosa," "Fenella," and "Duncan Hoyle," the first two being paddle steamers. But the attempt to run such a big affair was premature, and it ended in failure. Before closing this short sketch the names of Messrs. Wm. John Lyne, Charles Meredith, and Bernard Shaw should be noted as two of the three were natives of the district, and the third came to it as a boy.

William John Lyne was the son of John Lyne, many years M.H.A. for Glamorgan, and was born at Apslawn on April 6, 1844. At the age of 20 years he went to Queensland, but in 1866 returned to Tasmania, and was appointed council clerk at Swansea, a position he held for about nine years. In 1875 he went to Albury (N.S.W.), and represented the district of Hume in the N.S.W. Parliament for some years, holding the portfolio of Minister for Lands and Works. He was afterwards Premier of New South Wales, and when the Commonwealth Government was opened in 1901 he was Minister for Home Affairs. He was granted a K.C.M.G. in 1900. He died at Sydney on August 3, 1913.

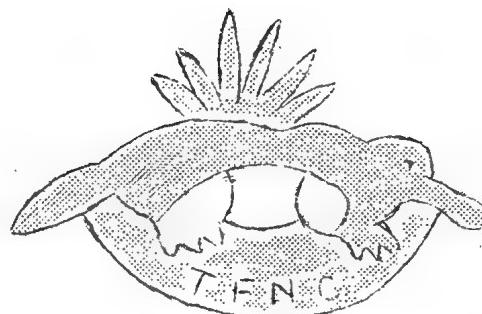
Charles Meredith was the second son of Lieut. George Meredith, Royal Marines, and was born at Poyston, Pembrokeshire, on May 29,

1811, and arrived in Van Diemen's Land in 1821. In 1834 he went to New South Wales, and thence to England, and returned to New South Wales in 1839. In 1840 he returned to Glamorgan and resided at Riversdale. In 1842 he built Springvale, but the following year was appointed Police Magistrate at Port Sorell. In 1848 he resigned his appointment and returned to his home at Riversdale. In 1856 he was appointed M.H.A. for Glamorgan, and later for Kingborcugh. He held the offices of Colonial Treasurer under the Hon. James Whyte for 3½ years, and Minister for Lands and Works under the Hon. F. M. Innes. In 1878 he was Warden of Spring Bay municipality. He died on March 2, 1880, and is buried in St. George's Cemetery, Hobart.

Bernard Shaw, the eldest son of Edward Carr Shaw, who was for several years Visiting Magistrate at Swansea; was born at Red Banks on October 12, 1836. In 1853 he entered the Civil Service, and was appointed police-clerk at Swansea until 1860. He then went to Port Sorell district. He was appointed Police Magistrate at Devonport. He then returned to Hobart, and was assistant clerk of the House of Assembly. In 1869 he was appointed Police Magistrate and Gold Commissioner at Waterhouse, in 1873 Usher of the Black Rod, and in 1883 Secretary for Mines. In 1886 he was appointed Sheriff and Commissioner of Police in Hobart, an office he held until 1899. He received the Imperial Service Order in 1905, and died in Hobart on September 5, 1910.



Members of the Field Naturalists' Easter Camp "a-breaking up the happy home" after a most enjoyable time under canvas.



Tasmanian Field Naturalists' Club

E A S T E R C A M P

R E V I E W

RHEBAN

March 26-31, 1959

CONTENTS

General Account	Page 1
Botanical Notes	5
Marine Life	6
Insects etc.	7
Reptiles	8
Bird Notes	9
Mammal Notes	12
Map	13

NOTE:

The last publication of the Club was
"The Tasmanian Naturalist",
Volume 11, No. 3, February, 1955.

23.3.1961.

-1-

The Easter Camp of 1959 was held at Rheban, seven miles south of Orford on the East Coast. We were favoured by fine weather throughout the long weekend, and were able to make full use of the opportunities offered for observations in this very attractive area.

The camp-site, made available to us by Mr. H. J. Gray, was formerly occupied by the old "Rheban" homestead, which was for a short time a hotel in the immediate post-war years, and was burned to the ground about ten years ago. It was a novel situation for us, pitching camp amid the exotic trees of the old garden, with old freestone barns and three very interesting water-holes close by.

The outlook from the camp was all that could be desired - almost at our feet was the rocky shore of Mercury Passage separating us from Maria Island, which dominates the views along this part of the coast. Just to the left was the northern end of $2\frac{1}{2}$ mile-long Rheban Beach, one of the best we have, and the old jetty now dilapidated and useless. To the south of the camp was the broad marshy estuary of the Sandspit River, which has been a bird sanctuary for some years. The steep hill immediately behind the camp was sparsely covered by Blue Gums, other hills further back were more heavily wooded.

The camp was erected and prepared most ably by the untiring Camp Committee, under the leadership of Mr. H.F. Sargison, during the preceding week, so that when the main party arrived just before 10 p.m. on Thursday evening cups of coffee were ready and members could retire to their beds which were already prepared.

On Good Friday morning most members climbed to the top of the hill behind camp, from which extensive views of the surrounding district were obtained. The numerous water channels through the marsh on both sides of the Sandspit River were clearly seen. After lunch the marsh was visited, the party following the track from the campsite to the ford across the River.

Following a very dry season there was very little water, except in the well-defined channels which were dug many years ago in efforts to drain the area for agricultural purposes, and little difficulty was experienced. Upon reaching the ford we followed the northern bank of the river to its mouth near the far end of the beach, and returned to camp along the seashore. The bird observers were well catered for in this area, where a variety of water and shore-birds were seen. Immediately behind the beach is a narrow strip of coastal scrub and bracken, which also provided much of interest.

The oldest homestead in the district, "Earlham", on the southern side of the River, was visited on Saturday morning, the party travelling a distance of about 4 miles by car. Mrs. Chesternan must have been overwhelmed by the invasion of her home, but she readily allowed everyone to wander through the house, built in the early colonial style, and admire the way in which they have introduced modern amenities without disturbing the charm of the lovely old building. The stone-flagged verandah with its posts of Oyster Bay Pine is a feature. The old barn with its hand-made wool-press, the hand-work of John Cotton, the original owner, was also inspected. From "Earlham" the party proceeded across the paddocks to the southern side of the Sandspit River mouth where lunch was taken. Most members spent the afternoon in that area, following their interests, while some of the more energetic ones walked to Cockle Bay, some miles down the coast. All returned safely to camp in good time to do justice to a fine meal prepared by our good chef, Andre.

Sunday morning dawned fine and mild so by previous arrangement a large fishing boat arrived from Triabunna to take our party across to Maria Island. It was unfortunate that neither at Rheban nor at Chinaman's Bay, on Maria Island, was there a jetty which could be used, so that it was necessary to ferry members from the shore to the boat and vice versa in two small dinghies. This occupied four valuable hours in all, so that our time on the island was unduly limited. The journey to Chinaman's Bay was uneventful, and a delightful spot was found for the picnic lunch, after which members scattered in various directions.

Some visited Long Point to see the ruins of convict cells still visible on the hillside, and then moved on to see what two small lagoons had to offer. Others followed the neck beach and then crossed to Riedle Bay on the eastern side, while still others just roamed about or sat quietly on the beach. The return journey was more lively, as a slight N.E. breeze, which had been blowing gently in the morning, gradually increased in strength and brought the temperature down considerably. As someone said afterwards - "We travelled a long way up and down, but not very far along". However, members proved good sailors as well as good naturalists, and all agreed that the excursion had been very worthwhile and enjoyable. That evening (Easter Day) a short church service was held in the marquee after the dinner had been cleared up.

In contrast to the previous days, no organised outings were held on Monday, but members found plenty to occupy their time. Swimming proved a popular past-time on this day as well as on others, while short excursions were made by individuals or small parties to fill in gaps in their observations.

No account of an Easter Camp would be complete without reference to the evening activities. Our practice of arranging one or more campfires had to be abandoned because of the Fire Danger Period existing after the long dry summer. Campers gathered in the big marquee each evening, firstly, to report observations of the day, and secondly, to hear short talks on the history, natural and otherwise, of the district. Community singing and individual items completed the entertainment, which was followed by supper. On Saturday evening members retired to the hay-loft after supper to enjoy a real barn dance by lantern light.

The last night in camp has developed into a night of special entertainment, and this year was no exception. We were able to return hospitality to our hosts, Mr. & Mrs. Gray and family, and Mr. & Mrs. Chesterman and family at the concert on that evening, and a good number of the members provided a wide variety of items. Andre produced a beautifully decorated cake for supper, after which the hay-loft became the scene of a Masked Ball. The variety of costumes and masks which materialised for the occasion was remarkable, and was a good indication of the resourcefulness of the participants.

Our special thanks are due to Athol Yeoland for providing music for our entertainments.

And so we came to the end of another camp, for which our Club has earned a fine reputation during more than fifty years. That it continues to attract such large attendances year after year is a warm tribute to the organisers to whom we all say a very hearty "Thank You". busy

Tuesday saw all hands with the task of packing up almost ten tons of gear and personal belongings, and clearing up the site. Light drizzle set in during the morning, but by that time almost all tents were safely stowed away and the work well advanced. The task was completed soon after lunch and the last persons left the site before 3 p.m.

We have been complimented by Mr. Gray for the manner in which we tidied up the site before leaving. It has always been a source of pride that we do this work thoroughly, and we are glad to know that our efforts are appreciated.

Those who attended the camp were:-

Messrs. B. Allen, H.K. Aves, D. Branagan, A.B. Brownell, G. Brownell, J. Chick, H. Dean, B.O. Eckland, J. Fergusson, D. Guilbert, A.M. Hewer, R. Hewer, B. Hicks, F. King, R. King, J. Lewis, J. Lucas, R. Morrisby, J. Rossiter, H.F. Sargison, M.S.R. Sharland, F.J. Swann, F. Tayler, E. Troughton, L.E. Wall, P. Webster, K. Wells, D. Wilson, A. Yeoland.

Mesdames M. Bennett, Branagan, A. Button, E. Fleming, Scott, F. Tayler, Thorp, L.E. Wall, A. Yeoland.

Misses B. Allen, S. Aves, G. Aves, E. Aves, S. Barry, M. Branagan, E. Brice, R. Featherstone, M. Hewitt, P. Hewitt, M. Ibbott, Nix-Janes, Jenson, S. Johnston, Y. Louez, L. Miller, A. Medhurst, J. Mitchell, E. Morrisby, C.H. Mosey, H. Nash, Parish (2), P. Perkins, Yeoland, I.B. Pollit, E. Roberts, E. Ross, K. Sargison, P. Tayler, A. Wall, B.Wall, C. Wall, M. Westbrook, Masters P. Barrow, D. Donbrowski, P. Fergusson, M. Hewitt, E. Johnston, Lucas, P. McCormack, P. Wall, R.Wall, S. Yeoland.

BOTANICAL OBSERVATIONS

(by H.K. Aves)

From a floral point of view Rheban was rather disappointing, though no doubt there was a great deal of botanical interest which went unnoticed for the lack of a really skilled leader in botany. Apparently nobody saw blooms of the autumn flowering wattle, Acacia botrycephala, though this has been recorded at all previous camps, nor the typically autumn orchid, Eriochilus autumnalis.

The dominant species of Eucalyptus around the camp was the blue gum, E. globulus, with the peppermint E. linearis a good second. Recorded from the hillside above the camp were bracken Pteris aquilina, heath Epacris impressa, ground heath Lissanthe strigosa, cranberry Astroloma humifusum, Cyathodes spp., dogwood Pomaderris apetala, box Bursaria spinosa, Epilobium glabellum, Geranium rotundifolium, Hovea, bluebell Wahlenbergia gracilis.

On the saltmarsh, samphire Salicornia arbuscula and S. australis, and on the sandy strip between river and beach a light scrub of Banksia marginata native cherry Exocarpus cupressiformis, boobyalla Acacia uophorae, blackwood A. melanoxylon, black wattle A. acurens, with such low shrubs as running postman Kennedya prostrata and Viola hederacea.

Between Earlham and Cockle Bay the following were added from pasture, gullies and sandhills - burr Acaena sanguisorbae, sag Xerotes longifolia, prickly moses Acacia verticillata, tea tree Leptospermum scoparium, she-oak Casuarina quadrivalvis bull-oak C. stricta, parrots food Goodenia ovata, climbing blue-berry Billardiera longifolia, Mesembryanthemum aequilaterale, whitebeards Leucopogon australis & L. richei, Blueberry Dianella tasmanica, prickly beauty Pultenaea juniperina, Bedfordia linearis, Eucalyptus ovata, false boobyalla Myoporum insulare, Isotoma fluviatilis. Many people were intrigued here by the sea-holly Eryngium vesiculosum, a creeping thistle-like plant.

On Maria Island, from Long Point and Chinaman's Bay
Eucalyptus ovata & E. globulus, Acacia decurrens, A. vorticillata, Bursaria spinosa, Bedfordia linearis, Pomaderris apetala, Leptospermum scoparium, Astroloma humifusum, Isotoma fluviatilis, Dodonea viscosa, Casuarina quadrivalvis, & Myoporum insulare, an almost exact replica of the opposite shore.

From various walks around Rheban the following were brought in, including the only two orchids found in bloom - Chiloglottis reflexa and Acianthus viridis - silver wattle A. dealbata, two Helichrysums, Anthisteria ciliata and Geranium ciliata.

The listing and most of the naming were ably carried out by Miss A. Wall and Miss M. Branagan.

MARINE LIFE (by F.J. Swann)

Those interested in any branch of marine biology had a happy time at Rheban, which, on account of the diverse character of the foreshore, showed varied types of marine fauna and flora.

The rocky coast, although not thickly populated, yielded chitons, limpets, dog whelks and the ubiquitous Melaraphe unifasciata. This little shell, purplish white and about $\frac{1}{4}$ " long, extended as usual from below waterline to the highest splash level, offering a puzzle to many to understand how it survives under such harsh conditions at the upper levels where food supply must be very meagre.

The sandy beach yielded the usual bivalve sand-burrowing shells, as well as others washed up from offshore.

A third and interesting area was the large expanse of marsh, where land and water boundaries were not clearly defined or constant. Shallow pools and other water in the marsh seemed to provide, on the muddy bottoms, optimum conditions for Salinator fragilis, a mollusc that is able to tolerate great variations in the degree of salinity in the water. These shells were present in thousands.

Apart from molluscs, many other forms of sea life were in evidence - echinoderms, barnacles, sea anemones and a variety of seaweeds.

Our very practical marine expert, Mr. J. Fergusson, brought in many interesting specimens of freshly-caught fish, but in the absence of a specialist these were studied more for their gastronomic than their ichthyological interest.

Good work was done by Mr. D. Wilson in classifying and naming shells brought in. These included - Mytilus spp., Modiolus spp., Glycymeris striatularis, Collana solida, Pecten meridionalis - Equichlamys bifrons - Chlamys asperimus (Scallops), Amblychilepos javanicensis, Austrocochlea conconerata, Phasianella australis, Amorena undulata, Colus australis, Dicathais textilea, Notocyprea piperita, Pleuroplaca australasia.

INSECTS ETC.

Insects in the area were quite varied, and included a number of the large brown mantis, many of which were observed laying their eggs.

Only two species of butterflies were seen flying - the Meadow Argus and the Common Brown. However, special mention should be made of the discovery near the mouth of the Sandspit River of a colony of the scarce Tasmanian Hairstreak (Pseudalmenus chlorinda). This now enlarges the known range of this species considerably.

Another important find, made at "Earlham", was one specimen of the St. Andrews Cross Spider, which is rare in Tasmania.

REPTILES (by A.M. Hewer)

Rheban proved disappointing, during the 1959 Easter Camp, for the study of reptiles. Possibly the scarcity of these generally can be explained by lack of sustained sunshine during this period.

Only two species of snakes were seen - the Copperhead or Superb Snake (Denisonia superba) and the White-lipped Whip Snake (D. coronoides). The Tiger Snake (Notochis scutatus), although known to occur in the area, was not seen.

Lizards were more numerous, but some species which should occur there were not seen.

The most common lizard was the small skink, Leiolapisma metallicum, the one we see most often in suburban gardens, and very easily tamed. In this genus three other species were reported:- (i) L. entrecasteauxii - of which the male follows the usual pattern found in birds, in that he has the most conspicuous and bright colours. He has a bright red stripe running along the side between the front and hind legs: (ii) L. trilineatum - this is the only skink found in Tasmania which normally lays eggs, and is usually found abundantly in sandy country: (iii) L. ocellatum, Tasmania's only indigenous lizard, of which only one specimen was collected, though it should be common in the area.

Of the Agamids, or dragons, only one was seen - the little Mountain Dragon (Amphibolurus diemensis). Although known in some districts by such ridiculous names as "Bloodsucker" or "Death Adder", this is one of the most harmless members of the reptile fauna of Tasmania and makes a most delightful pet. However, it must be kept with an abundance of live food (insects only).

The Southern Blue-tongued Lizard (Tiliqua nigrolutea), which occurs abundantly in the Orford-Rheban area, was only seen once. Lack of hot sunny days would probably be the reason for the scarcity of this species.

The Smooth Rock Lizard (Egernia whitii) was common on the rocky slopes of the hill behind the camp, and many specimens were brought in for identification.

The Slender Skink (Tiliqua casuarinae) occurs at Orford and at Bream Creek, so should also occur at Rheban, but no sightings were reported.

Frogs were very scarce, due to the dry season. Only two species were recorded - the Brown Tree Frog (Hyla ewingii) and the Burrowing Frog (Linnodynastes dorsalis). Many others should be found, and further observations in the area should produce all of the following:- Brown Froglet (Crinia signifera), Smooth Froglet (C. laevis), Green & Gold Bell Frog (Hyla aurea), Yellow-striped or Marbled Frog (L. tasmaniensis), and the Tasmania Toadlet (Pseudophryne bibroni).

BIRD NOTES.(by L. E. Wall)

Rheban district can be regarded as a good area for birds as it contains a wide variety of habitats. During Easter, 1959, observations were made over a wide area, but not to any extent in the forested parts, and the following notes cannot be considered exhaustive.

The two large grazing properties in the district, "Rheban" and "Earlham", consist mainly of grass paddocks with a good number of eucalypts left as shade trees. Between these is the Sandspit River, a small stream rising in the hills, and fringed in its lower reaches by large areas of marsh. The last mile or so is tidal, large areas of mud-flats being exposed at low tide. The river breaks through the beach to the sea over a sand-bar which is subject to considerable movement.

The grasslands were well populated with Spurwinged Plovers, Eastern Rosellas, Musk Parrots, White-backed Magpies, Noisy Miners, Grey Thrushes, Grey Butcherbirds and Ravens. Among clumps of shade trees Green Rosellas, Dusky Wood-swallows, Yellow-throated Honeyeaters, Black-headed Honeyeaters, Yellow Wattlebirds, Swift Parrots, Striated pardalotes and Spotted Pardalotes, were also in evidence. One Brown Hawk was seen.

In the narrow belt of bush and coastal heath between the beach and the marsh a few more were added to the list - Flame Robins, Scarlet Robins, Blue Wrens, Grey Fantails, and Crescent Honeyeaters. Many other from the open country were also seen here, perhaps the most noticeable being the Musk Parrots which always seem to be very numerous in this corner.

The heavier bush country away from the coast received little attention during the camp, but the following were listed from this area - Common Bronzewing Pigeon, Brown Thornbill, Yellow-tailed Thornbill, Black Jay, Black Magpie, Brown Scrub Wren, Dusky Robin, Spine-billed Honeyeater, Strong-billed Honeyeater and Spotted Groundbird or Quail-thrush.

The last-named lives on the ground, feeding on seeds very largely, but unlike the pigeons it is difficult to flush. Its mode of life renders it easy prey to prowling cats, and for that reason it is becoming quite rare in the vicinity of settlement.

The lower reaches of the river and the marsh provided the best opportunities for bird observations, and good use was made of them. This area has been a bird sanctuary for about ten years, and the property owners have taken a great pride in it. Ducks were not very numerous, but this is not unusual for autumn. A small flock of Black Ducks and about 100 Grey Teal were seen, and there may have been a few Chestnut Teal present. About 100 Black Swans were also seen on the estuary, and four Pelicans graced the sandspit on our first visit to it. White-faced Herons fed widely over the mudflats and a Brown Bittern was found along the edge of the marsh. A Large Egret was also reported by one observer. A Caspian Tern patrolled the river, while Little Pied Cormorants and Large Black Cormorants rested on a fallen tree. The mudflats also provided a good feeding ground for Spurwinged Plovers, Silver Gulls, Pied Oystercatchers (34), Red-capped Dotterel (6), Double-banded Dotterels (60) and Little Stints. The figures quoted in brackets were obtained in a count taken at the mouth of the river on our second visit, when the tide was high. On that occasion 70 Crested Terns were seen also. Other birds on the marsh were the White-fronted Chat, Pipit and the Striated Field Wren (heard only). We were disappointed that no Native Hens were seen (one was heard), but we were told that they deserted the marsh about three years ago. The absence of Swamp Hawks was also very noticeable, though two were seen over the camp on the last day.

Along the beach were several pairs of Hooded Dotterels, and a small flock of Fairy Terns was also reported, but this was not confirmed. A number of dead Fairy Penguins was found, and one other was seen floating close inshore.

Off the coast a fine pair of White-breasted Sea Eagles was seen on several occasions, also a few Gannets and some Large Black Cormorants. A pair of Pacific Gulls frequented the old Rheebar jetty.

During the crossing to Maria Island on Easter Day, White-breasted Cormorants were added to the list near Lachlan Island, and on the return journey a pair of Shy (?) Albatrosses was seen at a considerable distance. As we dropped anchor in Chinaman's Bay we had a very good view of a Musk Duck near the jetty. It seemed quite unperturbed by our presence and made no effort to move away. As we returned to the boat three hours later it was still there, apparently asleep. A flock of Little Pied Cormorants rested on a rocky point during most of the day.

The only bird seen on Maria Island and not on the mainland was the New Holland, or Yellow-winged, Honeyeater, but it was interesting to observe a considerable number of Welcome Swallows and Tree Martins, both of which were very scarce on the mainland.

Migratory birds were conspicuous throughout the camp by almost total absence, the only exception to this being the Dusky Wood-Swallow. With Easter falling before the end of March this year, it was anticipated that we would see plenty of the migrants, but it seems that the long dry summer must have caused them to leave earlier than usual. As mentioned previously, only one pair of Swamp Hawks was seen. Among the Asiatic waders we might have expected to see Curlews, Bar-tailed Godwits, Curlew Sandpipers and others, but our only observation was of a few Little Stints.

We fared little better with bush migrants. Very few Welcome Swallows and Tree Martins were seen, and only one Black-faced Cuckoo-Shrike. Two Cuckoos were heard only - the Pallid, and one of the Bronze Cuckoos.

Introduced birds were plentiful: Goldfinches, House Sparrows and Starlings all being very common.

The Blackbird, which has increased to pest proportions in many parts of Tasmania was only seen once, and the Kookaburra was noted near Cockle Creek. This bird is also dispersing widely, though much more slowly.

MAMMAL NOTES. (by L. E. Wall)

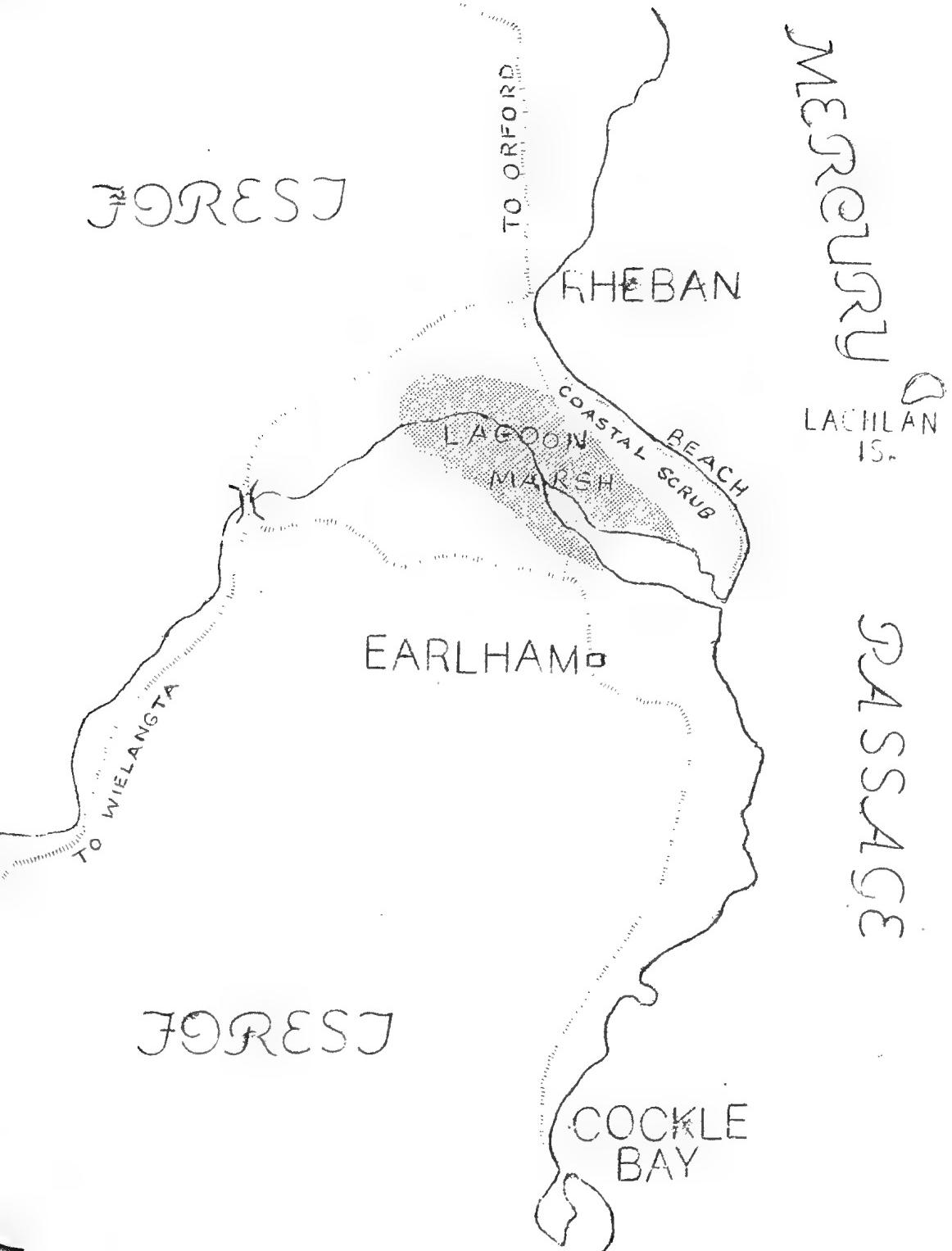
Special attention was not given to the occurrence of native animals in the camp area, but a number came under notice.

Tasmanian Brush-tailed Possums were very common and tame about the camp, some visiting the kitchen to collect food scraps. We did not see any Ring-tails.

On the hills behind camp a Brush Wallaby (commonly referred to as the Kangaroo) was seen on the first morning. No doubt many more would have been seen if more time had been spent in the forest areas.

Two other marsupials were found, both road casualties between the camp and Orford: one was the Tasmanian Rat-Kangaroo, and the other the Eastern Native Cat. Both species are common in bush country throughout the State.

Of marine mammals, the skulls of three species were picked up on the beach. These were of the Australian Fur Seal, the Common Dolphin and the Bottle-nosed Dolphin. One evening Mr. Ellis Troughton gave us an instructive talk on the Dolphins, describing the chief characteristics of each.



PASQUETTA'S FIELD NATURALISTS' CLUB

3 A 152 T E R C A H I D P E E V E E W

卷之三

31st March - 6th April, 1961.

General Account	Page 1
Notes on the Flora	4
Marine Biology	4
Bird Notes	6
Reptiles & Amphibians	8
<i>Insect Notes</i>	9



GENERAL ACCOUNT

The bucolic peace that had been enjoyed by the native fauna resident on Charlie Shaw's property at Swansea was rudely shattered a week before Easter 1961 by the arrival of a large truck carrying a mountain of goods; cups and cabbages, stools and stoves, forks and frypans, and general what-have-you.

A possum from his vantage point in the tree-tops yelled "See the shape of things to come!" The Advance Party had arrived. From then on all the creatures of the bush were intensely interested in watching the strange, restless activities of these human beings. Fortunately Prof. Arachnida, the noted humanologist, was present and explained to the local population of lizards, ants, frogs and others the meaning, if any, of the human activities. He explained that humans were the most destructive animals on earth, but the variety "Naturaloida" now under observation were not quite as bad as others.

The following observations were made :- The males humans of the advance party struggled round with many huge bundles from which they dragged a type of cocoon called a "tent", two of which were very large.

One human female was observed in this advance group; this interesting creature was most restless; she kept dashing in and out of smoke from a fire, around which she had placed strange black objects. From time to time the males gathered round her and she placed food before them. Having speedily devoured this they made a curious chirrup "Thank you, Mrs. Fleming."

There seemed to be a special chirrup for each type of activity.

On the Thursday before Easter the stillness of the night was shattered by the arrival of many smelly and noisy contraption-

from which many more humans emerged. Then followed a babel of chirrups as they rushed to the big tent and devoured some hot brown liquids. Afterwards they crept off to sleep in the smaller cocoons that the savanne savannah prepared for them.

The next day they settled to a behaviour pattern that was followed for the rest of the stay. They emerged each morning from their sleeping places to assemble in the big tent for food, and this feeding session was repeated three or four times each day. The female bird dispenser had now been replaced by a male called Andre, who was most popular.

After feeding, some showed amphibian tendencies and swam in the water, others displayed curiosity about birds, and various objects cast up on the beach or in other nearby habitats.

In the morning they gathered together and a swarm rushed off in unison, running through the water that was then shallow over the sand at the mouth of the Meredith River. Then they plunged into the bush, stopping often to gaze at the numerous spiders that had spun their webs in the foliage. A copperhead snake was disturbed by them and struck several paces in the long grass. After more tramping the main clan proceeded to the south of the Swan river and were most inquisitive regarding the habits and species of waterfowl there.

Another day they followed the Meredith River up to where other humans had built an obstruction to the flow of water.

Each day as they tramped about, they picked up flowers and other specimens which they did not eat. These they brought back to the big tent where they were placed on a board. After the evening feeding one of them would pick up one of these objects and chirrup about it - one called Mr. Nicholls picked up a dead fish and did much chirruping about it while the others kept silent. A Dr.

Sullivan did the same about some jaw bones, and a third spoke about birds. The Professor was puzzled by this one name, which, according to his lexicon, means "the side of a house". Yet another about the leg of a wallaby and corncrake shells, another about plants. The Professor was puzzled by these names too, as both appeared to be bird names but they appeared to have definitely been chosen for them.

In the latter part of each evening a restless excitement was noticeable: then one Pritchett seemed to take control and direct others in strange antics, and a churruping which Prof. Macalister called laughing, would occur at frequent intervals. A human governing council was mimicked; a court scene was played, and another group showed early behaviour patterns of the "Naturalcide". Many helped in this play, from relatives and children and females.

The Professor noticed one strange thing. Many times one human would meet another and churrup, "Where are Sargin and Sharland?" The reply was "Not here", and the faces of each would lengthen. These two appeared to be chiefs who for many years had been with the tribe, and their absence caused much disappointment.

On Tuesday great activity marked the folding and gathering of all the gear, much use was made of the item called cameras, and then the humans departed as they had arrived, and peace once more came to this part of the land.

ALONG THE ROAD!

How many of the car drivers homeward bound stopped between Oxford and Buckland to examine the Tiger Cat which had just fallen victim to a passing car?

NOTES ON THE FLORA - by Kelsey Aves

There were two main habitats within the area of official excursions - the sandhills and sandy soil immediately behind them where the camp was situated, and the fairly dense gully forest of the walk up the Meredith River.

On the sandhills were the Coast Fuchsia (*Correa alba*), Goobyealla (*Aescia sophoreae*) and Coast Whitebeard (*Leucopogon fichei*). These are quite characteristic of practically all sand-dunes around our coasts. The flower of *Correa alba*, as its name suggests, is normally white, but a bush of quite pink flowers was found near the camp. On an incline behind the dunes were found also Bluebell (*Wahlenbergia gracilis*), Running Postman (*Kennedyia prostrata*) and Banksia marginata. On the very dry pasture flats Sorrel (*Oxalis corniculata*), Musk (*Mimulus repens*), Guinea Flower (*Hibbertia fasciculata*) and Cranberry (*Astroloma humifusum*) were noted in flower. White Gum (*Eucalyptus viminalis*) was the dominant Eucalypt around the camp, with She-oak (*Casuarina quadrivalvis*) on the banks of the river.

On the walk up the Meredith River to the dam stands of Silver and Black Wattle (*Acacia dealbata* and *mollissima*), and also *A. ricinana* and *A. eucronata* were seen, also some specimens on the river bank of Kangaroo Apple (*Solanum aviculare*) reminding us of the beautiful flower paintings done by Mrs. Meredith in this area some hundred years ago.

An exceptionally dry summer and spring no doubt accounted for a scarcity of herbs against shrubs, though it is surprising how plants do manage to survive such extreme conditions.

MARINE BIOLOGY - by F. J. W. Swann

The sea beach adjacent to the camp was very popular for bathing, walking and for "hunitors" interested in Marine life.

20.

In extraordinary number of sea cucumbers had been taken at the beach. These measure about 12 inches in diameter and 2 inches in height. They were found near the Echidnidae, more

commonly the sea stars (Class Asteroidea), and the sea urchins (Class Echinoidae). Siphonaria or loach shells were also found. The commoner species of Muricidae, some Cyprinidae, and a few other families were collected, but as a bivalve shell was not found, though many or broken ones were seen along the shore but none of our campers tried collecting it nor did I material available.

Sponges (Poriferæ) were common, and larger varieties, Ctenostomes and others were represented. One of the largest was a large irregular mass often found on the rocky North-east Coast beaches.

A number of sun-bleached shells were found, and finger pressure on the top of them caused a sudden dislodging of a small, pale, thin-shelled "sea squirt".

The phylum Mollusca was well represented noticeable being the large numbers of the various species of *Murex* found either washed up on the beach,

Pearl Mussels shells (*Xenogalea lyrata*) were found, as well as the scallop shell *Pectenadiscus*, many *Litophorus*, *Cerithia*, *Tibia*, *Cardium*, and other genera.

Of great interest was the finding of living *Argonauta* in the mouth of the Moreton River. These are unrepresented with the warmer waters of the South Pacific and Indian, but they were found from St. Helena, and since then from New Zealand and the West Coast of Tasmania.

Aug 1 - S. Wall.

read by observers during the camp portion, yet the Riot Committee had well up to the time of their visit.

The habitat area of open savannah country extends all along the East Coast, and this provides a wide range of birds. Next in order of importance was a scrub area which extends for a short distance inland from the northern Kranji Road Pk. to the mouth of Sungei Singapore. This is about nine miles inland, but not sufficiently covered to be sampled. Between these two habitats most of the birds were seen.

From the scrub and the adjacent Cypress Bay area, the first haul of bird lists, including a few visitors from the west, included 10 species. Two new records were made, both north of the campsite produced 10 new birds, though not as many as had been seen before.

The remaining habitat visited was a strip of scrub along the Macmillan River in the vicinity of the sea which is the drainage with its domestic water supply. This is located about 2 miles from the mouth of the river, where it is very sheltered. It is a delightful area, which in the month of the year might be expected to contain a large number of birds. During our visit 7 birds were added to the list. At one point along a picnic landing by the river, a Kingfisher was observed flying high overhead, and while it was flying directly above it was possible to watch it being overtaken by several Purple Wood Swallows. The latter were seen to continue their way northward in search of warmer weather, leaving our winter migrants and other non-vegetable eaters behind them. These birds do not usually penetrate so far north as this.

At approximately noon today, a regular sunbathing took place apparently early afternoon. Perhaps this may

Had it been a normal autumn no doubt many frogs would have been recorded. However, only one species has actually been seen - the Brown Tree Frog (*Litoria ewingii*). Other species known to occur in the area but not recorded on this occasion are ... Bibron's Toadlet, Brown Froglet, Eastern Field Frog, Banjo Frog (also known as Full Frog) and the Golden-striped Frog.

THE TASMANIAN HAIRSTREAK BUTTERFLY - By A. H. D. Newell

This species (*Pseudochazara elwesi*), although not rare at times, is very restricted in its habitat and occurs only in fairly small "pockets".

It was discovered again at this year's camp about a mile north of the campsite, and is now known from eight localities - Richmond, Kingston, Ricketts, Colles Bay, Fingal, Scamander, Launceston and Swansea. No doubt it exists elsewhere, possibly all along the East Coast, where conditions are suitable.

The typical habitat is open country with Black or Silver Wattle and White Gum (*Eucalyptus viminalis*) growing in close proximity. The wattle must be within about 20 feet of the gum, which should be heavily infested with a particular species of small black ant. Provided these conditions exist at an altitude of not more than 1000 feet, and preferably close to the sea, the species could be present in the locality.

The larvae feed on either Black or Silver Wattle, and they exude a sweet secretion which is eaten by the ants. When fully fed (in January) the larvae migrate to the gum tree and pupate under the bark near the base of the tree. The butterflies are the first to emerge in the spring, and may be seen flying during August and September, when eggs are laid. These hatch in a couple of weeks and from then till January the larvae may readily be seen feeding.

COASTAL

MARICOCO

CLAM SITE.

CLAM

OYSTER BAY

HR

SEARCH

RIVER

CLAM SITE

Royal Botanic Gardens Victoria



RBG00019814



